

BAKERSFIELD CITY SCHOOL DISTRICT SOLAR: LINCOLN JUNIOR HIGH

815 Eureka Street, Bakersfield, CA 93305

GOVERNING CODES:

CALIFORNIA CODE OF REGULATIONS:
 2022 CALIFORNIA ADMINISTRATIVE CODE (CAC) (PART 1, TITLE 24, CCR)
 2022 CALIFORNIA BUILDING CODE (CBC), VOLUMES 1, AND 2 (PART 2, TITLE 24, CCR)
 (2021 EDITION INTERNATIONAL BUILDING CODE WITH 2022 CALIFORNIA AMENDMENTS)
 2022 CALIFORNIA ELECTRICAL CODE (PART 3, TITLE 24, CCR)
 (2020 NFPA 70)
 2022 CALIFORNIA MECHANICAL CODE (CMC) (PART 4, TITLE 24, CCR)
 (2021 EDITION IAPMO UNIFORM MECHANICAL CODE WITH 2022 CALIFORNIA AMENDMENTS)
 2022 CALIFORNIA PLUMBING CODE (CPC) (PART 5, TITLE 24, CCR)
 (2021 EDITION IAPMO UNIFORM PLUMBING CODE WITH 2022 CALIFORNIA AMENDMENTS)
 2022 CALIFORNIA ENERGY CODE (PART 6, TITLE 24, CCR)
 2022 CALIFORNIA FIRE CODE (CFC) (PART 9, TITLE 24, CCR)
 (2021 EDITION OF INTERNATIONAL FIRE CODE WITH 2022 CALIFORNIA AMENDMENTS)
 2022 CALIFORNIA GREEN CODE (PART 11, TITLE 24, CCR)
 2022 CALIFORNIA REFERENCED STANDARDS CODE (PART 12, TITLE 24, CCR)
 NFPA 13 - 2022
 NFPA 72 - 2022

REFERENCE CODE SECTIONS FOR APPLICABLE STANDARDS:

2022 CBC, CHAPTER 35

2022 CFC, CHAPTER 80

INSPECTIONS:

SAFETY DURING CONSTRUCTION TO COMPLY WITH 2022 CFC CHAPTER 33

ACCESSIBILITY NOTES:

1. ACCESSIBLE PATH OF TRAVEL AS INDICATED ON PLAN IS A BARRIER-FREE ACCESS ROUTE WITHOUT ANY ABRUPT LEVEL OF CHANGES EXCEEDING 1/2" IF BEVELED AT 1:2 MAX SLOPE, OR VERTICAL LEVEL CHANGES NOT EXCEEDING 1/4" MAX, AND AT LEAST 48" IN WIDTH. SURFACE IS STABLE, FIRM AND SLIP RESISTANT. CROSS SLOPE DOES NOT EXCEED 2% AND SLOPE IN THE DIRECTION OF TRAVEL IS LESS THAN 5% UNLESS OTHERWISE INDICATED. ACCESSIBLE PATH OF TRAVEL SHALL BE MAINTAINED FREE OF OVERHANGING OBSTRUCTIONS TO 80" MINIMUM AND PROTRUDING OBJECTS GREATER THAN 4" PROJECTION FROM WALL AND ABOVE 27" AND LESS THAN 80". ARCHITECT OF RECORD SHALL VERIFY THAT THERE ARE NO BARRIERS IN THE PATH OF TRAVEL.

2. SEE SITE PLAN FOR MORE INFORMATION ON PATH OF TRAVEL.

GENERAL NOTES:

ALL WORK SHALL CONFORM TO TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR).

CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATION SHALL BE MADE BY ADDENDA OR CONSTRUCTION CHANGE DOCUMENTS APPROVED BY THE DIVISION OF THE STATE ARCHITECT, AS REQUIRED BY SECTION 4-338, PART 1, TITLE 24, CCR & DSA IR A-6.

THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS IS THAT THE WORK OF THE ALTERATION, REHABILITATION OR RECONSTRUCTION IS TO BE IN ACCORDANCE WITH TITLE 24, CCR. SHOULD ANY EXISTING CONDITIONS SUCH AS DETERIORATION OR NON-COMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT COVERED BY THE CONTRACT DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CCR, A CONSTRUCTION CHANGE DOCUMENT (CCD), OR A SEPARATE SET OF PLANS AND SPECIFICATIONS, DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY DSA BEFORE PROCEEDING WITH THE WORK. (SECTION 4-317(c), PART 1, TITLE 24, CCR).

GRADING PLANS, DRAINAGE IMPROVEMENTS, ROAD AND ACCESS REQUIREMENTS AND ENVIRONMENTAL HEALTH CONSIDERATIONS SHALL COMPLY WITH ALL LOCAL ORDINANCES.

A DSA CERTIFIED PROJECT INSPECTOR EMPLOYED BY THE DISTRICT AND APPROVED BY THE DIVISION OF THE STATE ARCHITECT SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN SECTION 4-342, CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE (PART 1, TITLE 24, CCR)

A DSA CERTIFIED INSPECTOR WITH CLASS 2 CERTIFICATION IS REQUIRED FOR THIS PROJECT.

A DSA CERTIFIED INSPECTOR WHO IS SPECIFICALLY QUALIFIED IN MECHANICAL AND ELECTRICAL WORK WILL BE REQUIRED FOR THIS PROJECT.

A DSA ACCEPTED TESTING LABORATORY DIRECTLY EMPLOYED BY THE SCHOOL BOARD SHALL CONDUCT ALL THE REQUIRED TESTS AND INSPECTIONS FOR THIS PROJECT.

PROJECT DIRECTORY

SYSTEM HOST:	DEVELOPER/GENERAL CONTRACTOR	ELECTRICAL ENGINEER:	GENERAL CONTRACTOR
BAKERSFIELD CITY SD 1300 BAKER STREET BAKERSFIELD, CA 93305 661.631.4699	FOREFRONT POWER 100 MONTGOMERY ST #725 SAN FRANCISCO, CA 94101 PM: LYSY PAINE 805-610-7359	HARDIN-DAVIDSON 356 POLLASKY AVE STE 200 CLOVIS, CA 93612 LOREN HARDIN LICENSE: E-24039 559.323.4995 LH@HARDIN-DAVIDSON.COM	COLLINS ELECTRICAL COMPANY, INC 1902 CHANNEL DR WEST SACRAMENTO, CA 95691 916.567.1100 MARK WILLIAMS
ARCHITECT & DPRGC MMPV DESIGN, INC. 718 WARBOR DR SAN DIEGO, CA 92103 AOR: KRISTA LAMONDIN KRISTA@MMPVDESIGN.COM LICENSE: C-37790 PM: CLARISSA HOSKISON CLARISSA@MMPVDESIGN.COM	STRUCTURAL ENGINEER: TKJ STRUCTURAL ENGINEERING 9820 WILLOW CREEK RD, SUITE 490 SAN DIEGO, CA 92131 SEOR: TIMOTHY (BO) JAQUESS BO@TKJSE.COM LICENSE: S-4845 PM: BROOKE TRACY BROOKE@TKJSE.COM	GEOTECHNICAL ENGINEER: Geo-Engineering Solutions 2570 SAN RAMON VALLEY BLVD SAN RAMON, CA 94583 GOR: ERIC SWENSON ESWENSON@GEO-ENG.NET LICENSE: GE2473	

SCOPE OF WORK:

WORK CONSISTS OF INSTALLING (6) PHOTOVOLTAIC (PV) SOLAR POWER ARRAYS OVER EXISTING SPORT COURTS (PER DSA IR11B-9 ITEM 4B "UNRESTRICTED ACCESS, NO CHANGE IN USE"). SOLAR POWER SYSTEM CONSISTS OF EQUIPMENT, LIGHTING, PV MONITORING AND METERING COMMUNICATIONS AND POWER INTERCONNECT TO THE UTILITY GRID.

TOTAL MODULE COUNT: 444

KILOWATTS DC: 286.7 kW

TOTAL ARRAYS: 6

DEFERRED SUBMITTALS: NONE

NEW PHOTOVOLTAIC ARRAY CODE ANALYSIS: LINCOLN JUNIOR HIGH

SYSTEM DESCRIPTION: Module Type HSPE-144HC-M10-525W (2279mm x 1134mm x 40mm) 29.2 kg

Array Name	Array	Total Modules	kW DC	No. of Cols	Minimum Clear Height	Azimuth	Tilt	Occupancy	Const. Type	Area	Allowable Area
A1	6 x 16	96	50.40	3	11'-0"	197°	7°	E NS	II-B	2,722 SF	-
A2	6 x 16	96	50.40	3	11'-0"	197°	7°	E NS	II-B	2,722 SF	-
TOTAL AREA ARRAY 'A':											
B1	5 x 15	75	39.38	3	11'-0"	107°	7°	E NS	II-B	2,127 SF	-
B2	5 x 15	75	39.38	3	11'-0"	107°	7°	E NS	II-B	2,127 SF	-
TOTAL AREA ARRAY 'B':											
C1	6 x 17	102	53.55	3	13'-6"	107°	7°	E NS	II-B	2,891 SF	-
C2	6 x 17	102	53.55	3	13'-6"	197°	7°	E NS	II-B	2,891 SF	-
TOTAL AREA ARRAY 'C':											
TOTALS:				444	286.7	15				TOTAL PROJECT AREA: 15,480 SF	

STATEMENT OF GENERAL CONFORMANCE

APPLICATION NO.: 03-124358

FILE NO.: 15-6

THE DRAWINGS IDENTIFIED AS FOLLOWS:

THIS DEFERRED SUBMITTAL DRAWING SET (INCLUSIVE OF ALL SHEETS).
 DELEGATED STRUCTURAL COMPONENT DRAWING SHEETS LISTED HERE: _____.

HAVE BEEN PREPARED BY OTHER DESIGN PROFESSIONALS WHO ARE LICENSED AND AUTHORIZED TO PREPARE SUCH DRAWINGS (PLANS) IN THIS STATE. THEY HAVE BEEN EXAMINED BY ME FOR:

- 1) DESIGN INTENT AND APPEAR TO MEET THE APPROPRIATE REQUIREMENTS OF TITLE 24, CALIFORNIA CODE OF REGULATIONS AND THE PROJECT SPECIFICATIONS PREPARED BY ME, AND
- 2) COORDINATION WITH MY DRAWINGS (PLANS) AND SPECIFICATIONS AND ARE ACCEPTABLE FOR INCORPORATION INTO THE CONSTRUCTION OF THIS PROJECT.

SIGNATURE

03/04/2025

DATE

C37790

LICENSE NUMBER

SYSTEM HOST



SYSTEM DEVELOPER



ELECTRICAL CONSTRUCTORS AND ENGINEERS



STRUCTURAL ENGINEERING AND STEEL CONSTRUCT



ARCHITECT OF RECORD



ARCHITECT / ENGINEER OF RECORD



NO. REVISION DATE

DATE:

PROJECT

BAKERSFIELD CITY SCHOOL DISTRICT

Lincoln Junior High School

815 Eureka Street

Bakersfield, CA 93305

FFP PROJECT #

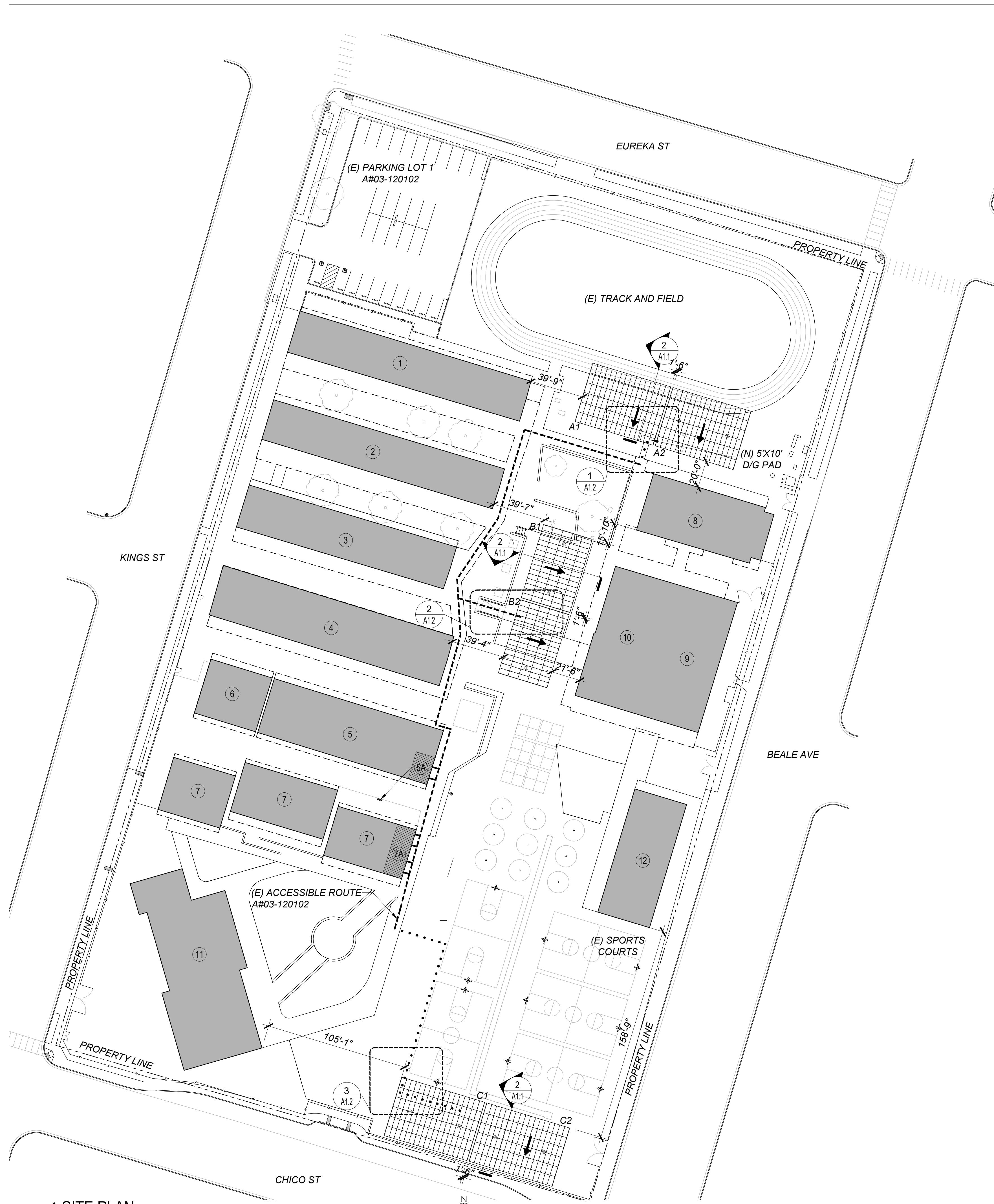
CA-19-0207

SHEET TITLE

TITLE SHEET

SHEET NO.:

A0.0



NEW PHOTOVOLTAIC ARRAY CODE ANALYSIS: LINCOLN JUNIOR HIGH											
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TOTAL AREA ARRAY 'B':											4,254 SF 14500
C1	6 x 17	102	53.55	3	13'-6"	107°	7°	E NS	II-B	2,891 SF	-
C2	6 x 17	102	53.55	3	13'-6"	197°	7°	E NS	II-B	2,891 SF	-
TOTAL AREA ARRAY 'C':											5,782 SF 14500
TOTALS: 444 286.7 15											TOTAL PROJECT AREA: 15,480 SF

SHEET NOTES

1. SEE SHEET A1.0 FOR ARRAY DIMENSIONS
2. SEE SHEET A1.2 FOR ACCESSIBILITY PLAN SHOWING NEW AND EXISTING ACCESSIBLE CONDITIONS
3. SEE ELECTRICAL SITE PLAN FOR POC INFORMATION AND LOCATION
4. ARROWS ON PLAN POINT TO LOW SIDE OF CANOPY

ACCESSIBLE PATH OF TRAVEL

1. (E) ACCESSIBLE ROUTE INDICATED BY DASHED LINE
2. (N) ACCESSIBLE ROUTE INDICATED BY DOTS

SYSTEM HOST



SYSTEM DEVELOPER

FOREFRONT
POWER
100 Montgomery Street #725
San Francisco, CA 94104
855-204-5083

ELECTRICAL CONSTRUCTORS AND ENGINEERS

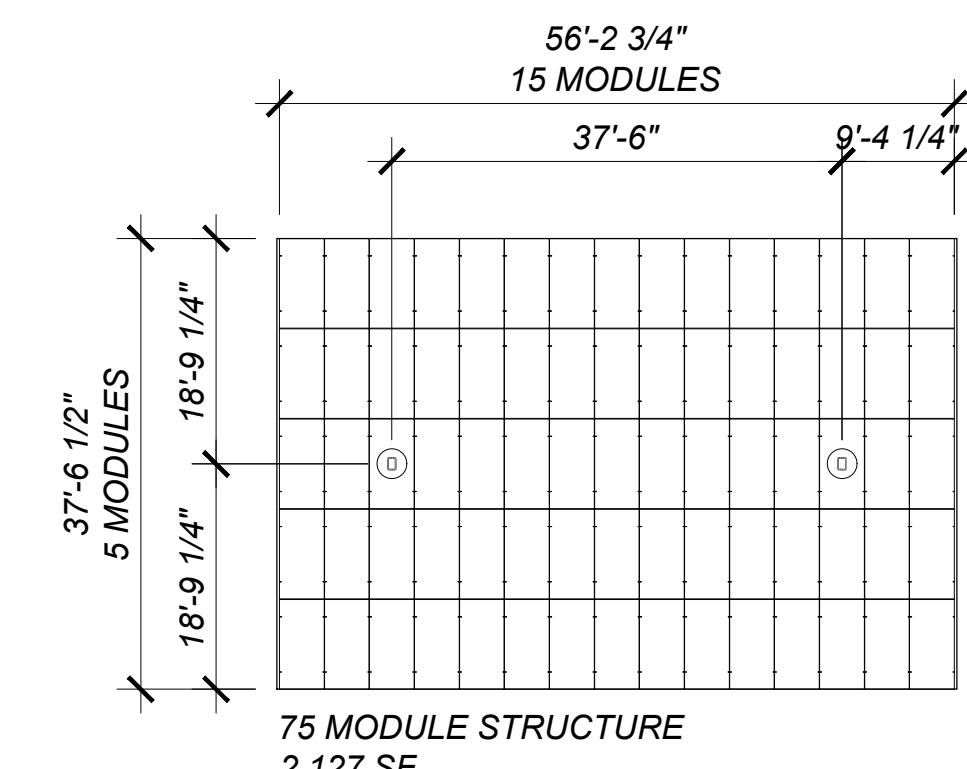
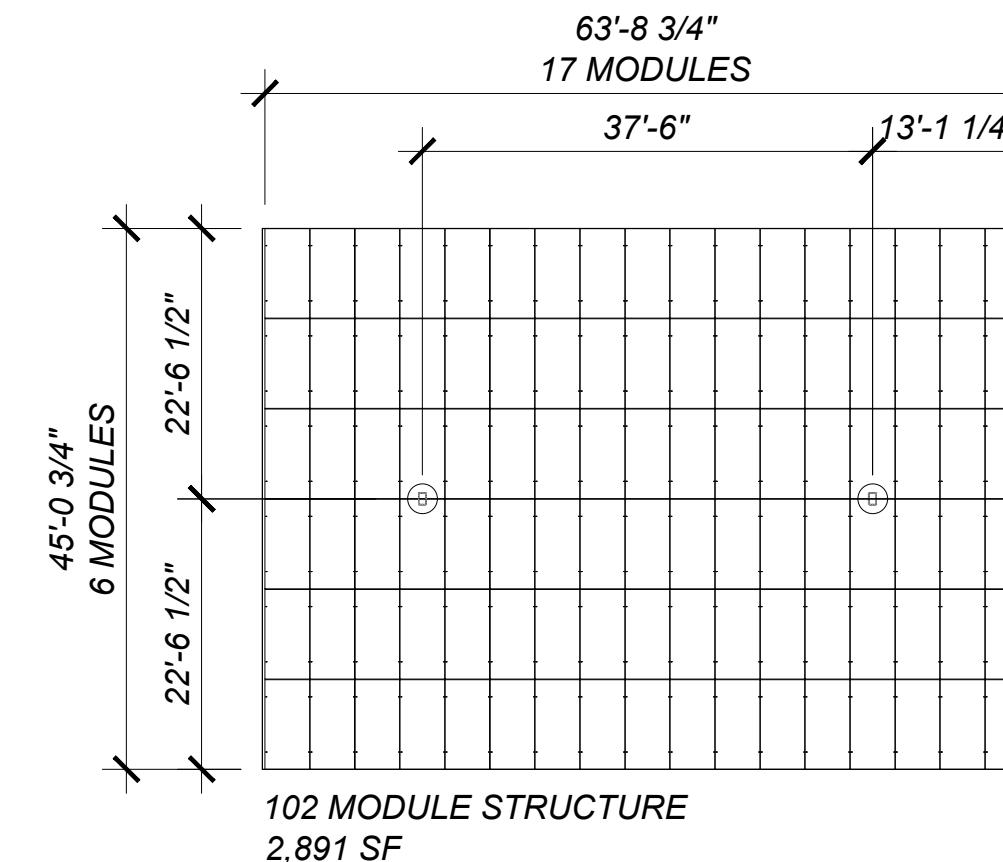
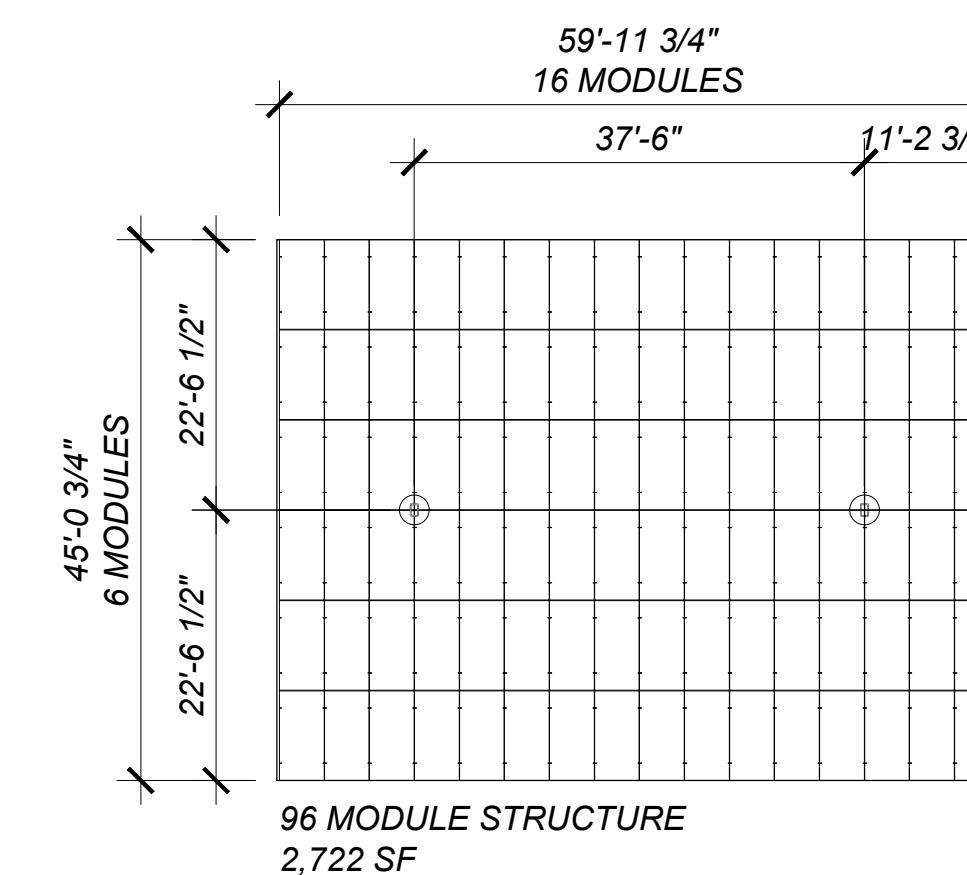
E COLLINS
ELECTRICAL COMPANY INC
1902 Channel Drive
West Sacramento, CA 95691
916-567-1100

STRUCTURAL ENGINEERING AND STEEL CONSTRUCT

BUILDING LEGEND

- 1 (E) BLDG B - CLASSROOM- A# 53378
- 2 (E) BLDG C - CLASSROOM- A# 53378
- 3 (E) BLDG D - CLASSROOM- A# 53378
- 4 (E) BLDG E - CLASSROOM- A# 53378
- 5 (E) BLDG F - CLASSROOM R20-R24- A# 03-118380
- 5A (E) ACCESSIBLE STAFF TOILETS & DF- A# 03-118380
- 6 (E) BLDG F - CLASSROOM R25/R26- A# 03-120102
- 7 (E) BLDG G - CLASSROOM R27-R33- A# 03-120102
- 7A (E) ACCESSIBLE BOYS & GIRLS TOILETS- A# 03-120102
- 8 (E) BLDG H - MULTI-PURPOSE- A# 53378
- 9 (E) BLDG I - MULTI-PURPOSE- A# 8270
- 10 (E) BLDG J - MULTI-PURPOSE- A# 19856
- 11 (E) BLDG K - ADMINISTRATION - A# 03-120102
- 12 (E) BLDG L - CLASSROOM R34-R37- A# 03-120102

PROPOSED ARRAYS ARE OVERHEAD PV SYSTEMS WITH UNRESTRICTED ACCESS AND NO CHANGE OF USE BENEATH. EXISTING ACCESSIBILITY PROVIDED IS CONSISTENT WITH THE CURRENT USE (SPORT COURT). A NEW ACCESSIBLE ROUTE ON EXISTING AC PAVING IS BEING PROVIDED FROM ARRAY A, B, AND C TO EXISTING ACCESSIBLE RESTROOMS AND AN ACCESSIBLE DRINKING FOUNTAIN. NO PATH OF TRAVEL IMPROVEMENTS ARE REQUIRED PER DSA IR 11B-9 ITEM 4B.



TKJ
9820 Willow Creek Road, Suite 490
San Diego, CA 92131
858-649-1702

ARCHITECT OF RECORD

M M P V d e s i g n
Mariana Moncada, Architect
718 West Arbor Drive
San Diego, CA 92103
619.632.2883

ARCHITECT / ENGINEER OF RECORD



NO. REVISION DATE

DATE:

PROJECT
BARKERSFIELD CITY
SCHOOL DISTRICT
Lincoln Junior High School

815 Eureka Street
Bakersfield, CA 93305

FFP PROJECT #
CA-19-0207

SHEET TITLE

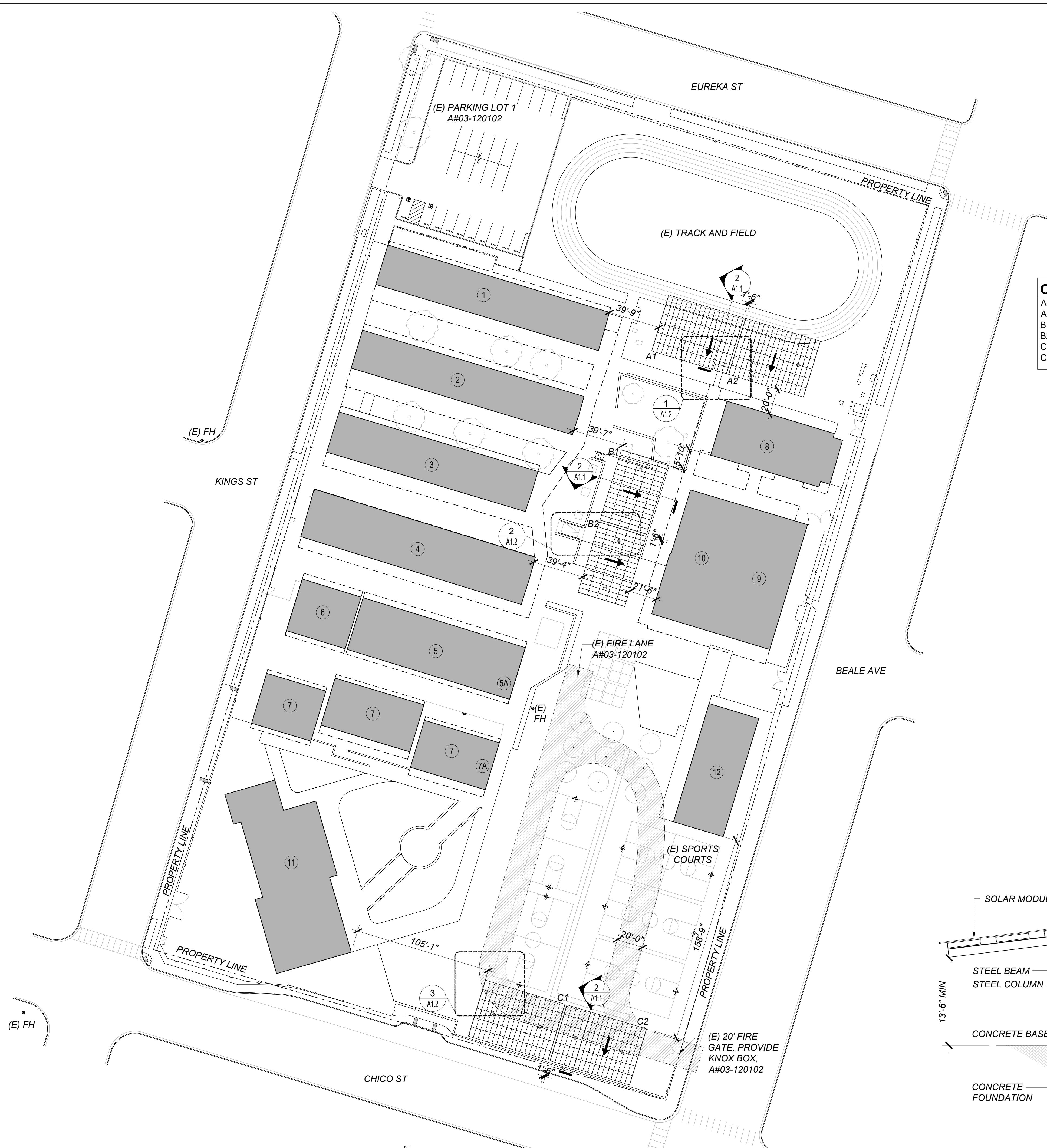
SITE PLAN

SHEET NO.:

A1.0

2 ARRAY LAYOUTS

Scale: 1/16" = 1'-0" (FOR 24X36 SHEETS)



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TOTAL AREA ARRAY 'C':											5,782 SF 14500
TOTAL PROJECT AREA:											15,480 SF
TOTALS: 444 286.7 15											

SHEET NOTES

1. SEE SHEET A1.0 FOR ARRAY DIMENSIONS
2. SEE SHEET A1.2 FOR ACCESSIBILITY PLAN SHOWING NEW AND EXISTING ACCESSIBLE CONDITIONS
3. SEE ELECTRICAL SITE PLAN FOR POC INFORMATION AND LOCATION
4. ARROWS ON PLAN POINT TO LOW SIDE OF CANOPY

OCCUPANCY CALCULATIONS

A1 - 2,722 SF	(E = 2,722 SF / 20 NET = 137 OCCUPANTS)
A2 - 2,722 SF	(E = 2,722 SF / 20 NET = 137 OCCUPANTS)
B1 - 2,172 SF	(E = 2,172 SF / 20 NET = 107 OCCUPANTS)
B2 - 2,172 SF	(E = 2,172 SF / 20 NET = 107 OCCUPANTS)
C1-2,891 SF	(E = 2,891 SF / 20 NET = 145 OCCUPANTS)
C2-2,891 SF	(E = 2,891 SF / 20 NET = 145 OCCUPANTS)

BUILDING LEGEND

- (E) BLDG B - CLASSROOM- A# 53378
- (E) BLDG C - CLASSROOM- A# 53378
- (E) BLDG D - CLASSROOM- A# 53378
- (E) BLDG E - CLASSROOM- A# 53378
- (E) BLDG F - CLASSROOM R20-R24- A# 03-118380
- (E) ACCESSIBLE STAFF TOILETS & DF- A# 03-118380
- (E) BLDG G - CLASSROOM R25/R26- A# 03-120102
- (E) BLDG H - MULTI-PURPOSE- A# 53378
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- (E) BLDG K - ADMINISTRATION - A# 03-120102
- (E) BLDG L - CLASSROOM R34-R37- A# 03-120102

DSA

810

FIRE & LIFE SAFETY SITE CONDITIONS SUBMITTAL

Division of the State Architect (DSA) documents referenced within this publication are available on the DSA Forms or [DSA Publications](#) webpages.

To facilitate the Division of the State Architect's (DSA) fire and life safety plan review of project site conditions, DSA requires the design professional to provide the following information at time of project submittal for projects consisting of construction of a new campus, construction of new building(s), additions to existing buildings, and for site alternate design means for fire department emergency vehicle access, and fire suppression water supply. Information associated with compliance items 1 through 3 below is to be provided for all project types indicated. Information associated with items 4 through 7 is to be completed when an alternate means is utilized. Acknowledgement by the school district and signature from the Local Fire Authority (LFA) is only required when an alternate design means is being requested.

The Project Information and Fire & Life Safety Information sections are to be completed for all projects and imaged onto the fire access site plan. When an alternate design/means is proposed, all sections on pages 1 and 2 are to be completed and imaged on the fire access site plan.

For additional information refer to the instructions at the end of this form and DSA Policy PL 09-01: [Fire Flow for Buildings](#).

PROJECT INFORMATION

School District/Owner: [Bakersfield City School District](#)

Project Name/School: [Lincoln Junior High](#)

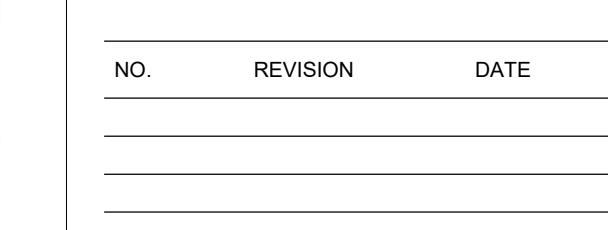
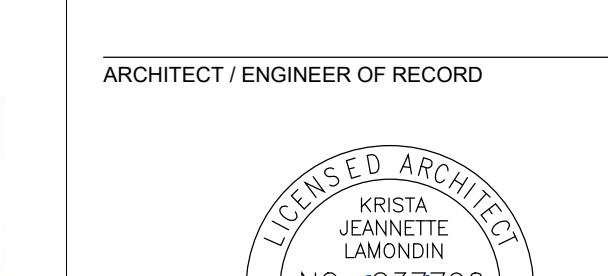
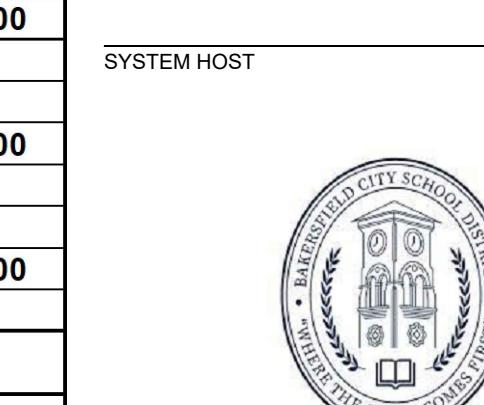
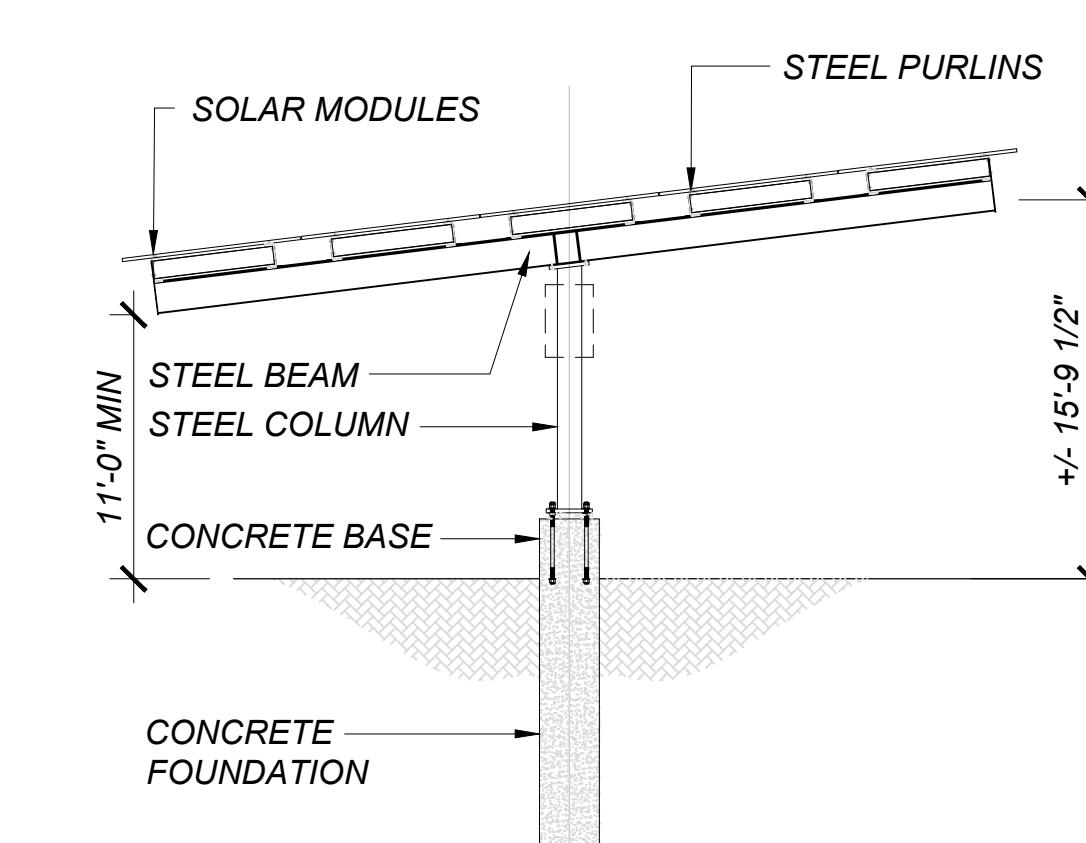
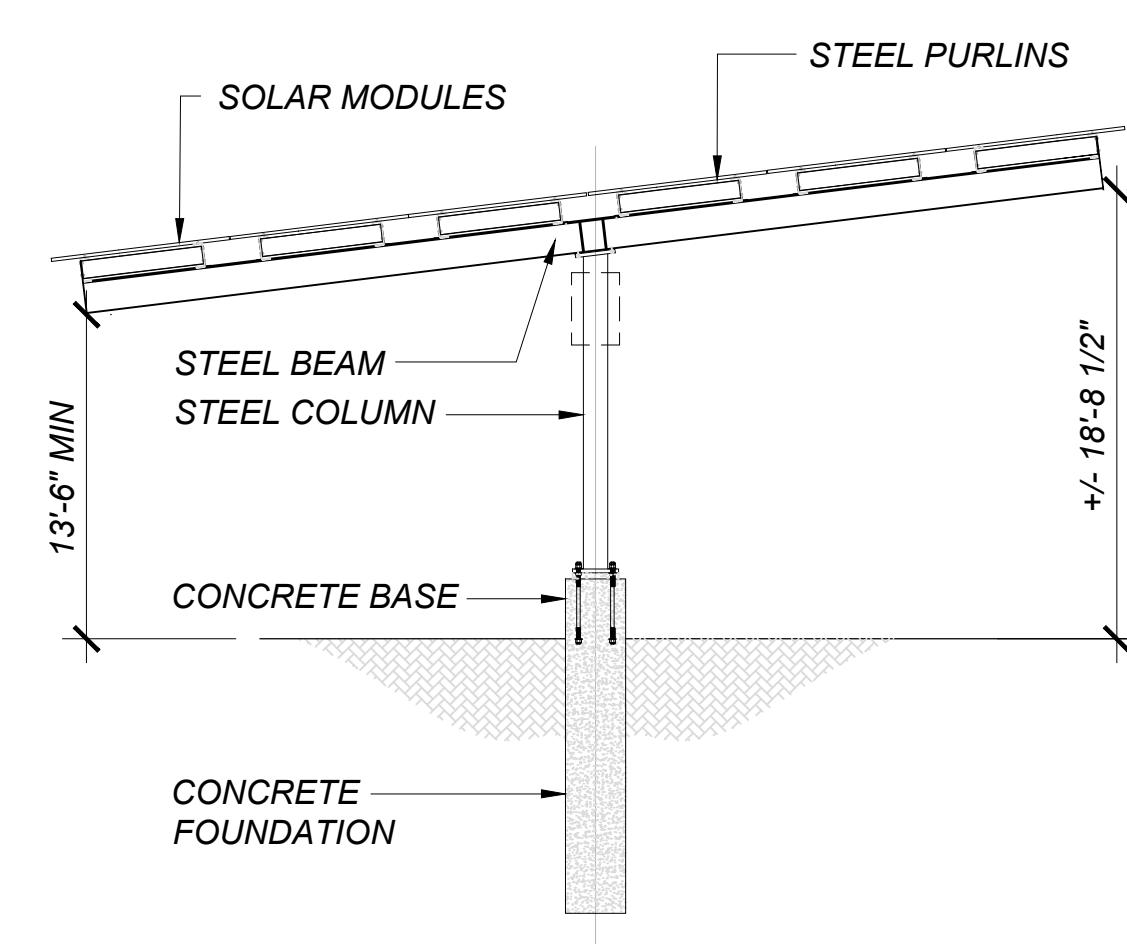
Project Address: [815 Eureka Street, Bakersfield, CA 93305](#)

FIRE & LIFE SAFETY INFORMATION

1. Has a fire hydrant flow test been performed within the past 12 months? (If yes, provide a copy of the test data.) Yes No
2. Was the fire hydrant water flow test performed as part of this LFA review? Yes No
3. Is the project located within a designated fire hazard severity zone (FHSZ) as established by CalFire? (If yes, indicate FHSZ classification below.) Yes No

Refer to the following website for FHSZ locations: <http://egis.fire.ca.gov/FHSZ/>

Wildland Interface Area (WIFA) If any designations are checked, project design must meet the requirements of CBC Chapter 7A.) Moderate High Very High WIFA



DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE STATEMENT:

"Design Professional in General Responsible Charge Statement: The accessible route identified in these construction documents meets the requirements of the current applicable California Building Code (CBC) accessibility provisions for path of travel requirements for alterations, additions and structural repairs. As part of the design of this project, the accessible route was examined and any elements, components or portions of the accessible route that were determined to be noncompliant with the CBC have been identified and the corrective work necessary to bring them into compliance has been included within the scope of this project's work through details, drawings and specifications incorporated into these construction documents. Any noncompliant elements, components or portions of the accessible route that will not be corrected by this project based on valuation threshold limitations or a finding of unreasonable hardship are indicated in these construction documents."

ACCESSIBILITY NOTES:

1. ACCESSIBLE ROUTE AS INDICATED ON PLAN IS A BARRIER-FREE ACCESS ROUTE WITHOUT ANY ABRUPT LEVEL OF CHANGES EXCEEDING 1/2" IF BEVELED AT 1:2 MAX SLOPE, OR VERTICAL LEVEL CHANGES NOT EXCEEDING 1/4" MAX, AND AT LEAST 48" IN WIDTH. SURFACE IS STABLE, FIRM AND SLIP RESISTANT. CROSS SLOPE DOES NOT EXCEED 2% AND SLOPE IN THE DIRECTION OF TRAVEL IS LESS THAN 5% UNLESS OTHERWISE INDICATED. ACCESSIBLE PATH OF TRAVEL SHALL BE MAINTAINED FREE OF OVERHANGING OBSTRUCTIONS TO 80" MINIMUM AND PROTRUDING OBJECTS GREATER THAN 4" PROJECTION FROM WALL AND ABOVE 27" AND LESS THAN 80". ARCHITECT OF RECORD SHALL VERIFY THAT THERE ARE NO BARRIERS IN THE ACCESSIBLE ROUTE.

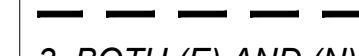
2. SEE SITE PLAN FOR MORE INFORMATION ON THE ACCESSIBLE ROUTE.

ACCESSIBLE PARKING AND ACCESSIBLE ROUTE REQUIREMENTS:

1. (N) ACCESSIBLE ROUTE INDICATED BY DOTS:



2. (E) ACCESSIBLE ROUTE INDICATED BY DASHED LINE:



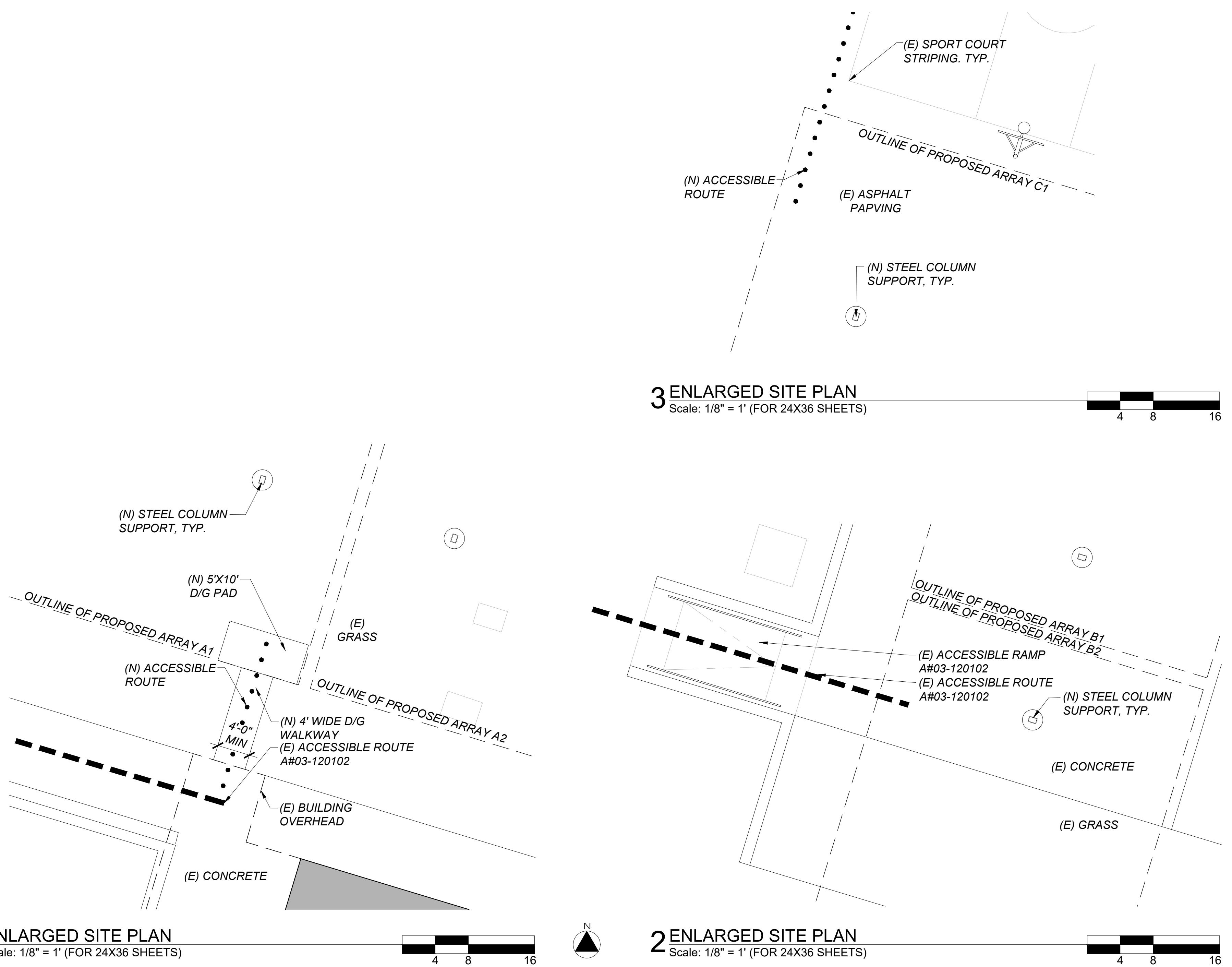
3. BOTH (E) AND (N) ACCESSIBLE ROUTE REQUIRE:

5% DIRECTIONAL SLOPE MAX.
2% CROSS SLOPE MAXIMUM

4. STALLS AND ACCESS AISLES REQUIRE:

2% DIRECTIONAL SLOPE
2% CROSS SLOPE MAX

5. FOR STRIPING, COLOR, WHEEL STOP, AND ALL OTHER DIMENSIONS, REFER TO SHEET A1.3



SYSTEM HOST



SYSTEM DEVELOPER



100 Montgomery Street #725
San Francisco, CA 94104
855-204-5083

ELECTRICAL CONTRACTORS AND ENGINEERS



1902 Channel Drive
West Sacramento, CA 95691
916-567-1100

STRUCTURAL ENGINEERING AND STEEL CONSTRUCT



9820 Willow Creek Road, Suite 490
San Diego, CA 92131
858-649-1702

ARCHITECT OF RECORD

M M P V d e s i g n

Mariana Moncada, Architect
718 West Arbor Drive
San Diego, CA 92103
619.632.2883

ARCHITECT / ENGINEER OF RECORD



NO. REVISION DATE

DATE:

PROJECT
BARKERSFIELD CITY
SCHOOL DISTRICT
Lincoln Junior High School

815 Eureka Street
Bakersfield, CA 93305

FPP PROJECT #
CA-19-0207

SHEET TITLE

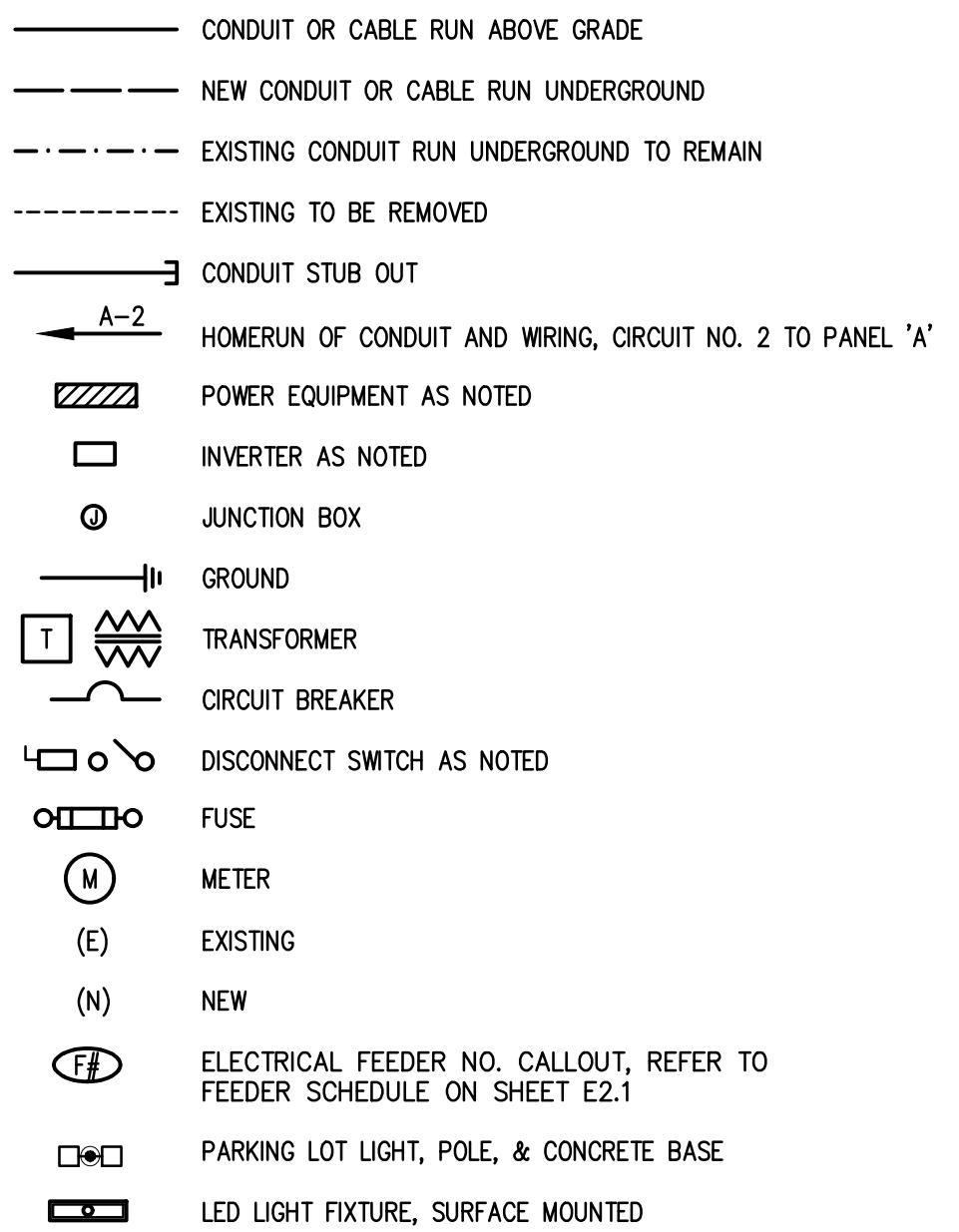
ENLARGED SITE
PLAN

SHEET NO.:

A1.2



ELECTRICAL SYMBOLS:



GENERAL ELECTRICAL NOTES:

1. ALL WORK AND MATERIAL SHALL CONFORM TO 2022 CBC, DSA IR 16-8, 2022 CEC ARTICLE 690 & OTHER APPLICABLE ARTICLES, CODES AND ORDINANCES. IT IS THE INTENTION OF THESE PLANS AND SPECIFICATIONS TO COVER ALL THINGS REQUIRED TO PROVIDE COMPLETE AND OPERATIVE SYSTEMS.
2. ALL EQUIPMENT TO HAVE TESTING LABORATORY LABEL ATTACHED.
3. CONDUCTORS SHALL BE THWN COPPER (CU) UNLESS INDICATED AS ALUMINUM (AL).
4. ELECTRICAL ROUTING IS DIAGRAMMATIC ONLY. ACTUAL ROUTING & PHYSICAL CONDITION MAY VARY, CONTRACTOR TO DETERMINE ACTUAL ROUTING AND PROVIDE ALL RECONNECTIONS & ITEMS NECESSARY FOR COMPLETE & OPERATING SYSTEMS.
5. ALL SOLAR ELECTRICAL EQUIPMENT TO BE UL 1741 LISTED, IEEE 1547 RATED, & APPROVED BY THE CALIFORNIA ENERGY COMMISSION.
6. ELECTRICAL EQUIPMENT (BRANDS "OR EQUAL" NOTE REQUIRED). OR EQUAL MATERIALS NEED TO BE APPROVED BY OWNER OR OWNER'S REPRESENTATIVE. LAYOUT LOCATIONS ARE REPRESENTATIVE AND ARE SUBJECT TO CHANGE WITH APPROVAL OF OWNER AND PERMITTING AUTHORITY, ETC.
7. PROVIDE "WARNING: PHOTOVOLTAIC POWER SOURCE" AFFIXED LABEL ON PV CONDUIT RUNS, BOXES, & CONDUIT BODIES INSIDE BUILDING.
8. STRING 1000V DC UL4703 (PV-WIRE) CABLING SHALL BE SUPPORTED TO MODULE & ARRAY STRUCTURE WITH WILEY ACME CABLE CLIPS.
9. ALL INVERTER DC STRING FUSES ARE 25 AMP UNLESS NOTED OTHERWISE.
10. HORIZONTAL DIRECTIONAL BORING OR TRENCHING FOR UNDERGROUND CONDUIT RUNS.
11. WHERE FEEDER CONDUCTORS ARE OVERSIZED FOR VOLTAGE DROP, PROVIDE CONDUCTOR REDUCING MEANS TO ACCOMMODATE INVERTER, PANEL, & DISCONNECT LUGS, SIZED PER CEC AMPACITY REQUIREMENTS. THE MINIMUM CONDUCTOR SIZE, FOR CIRCUIT BREAKERS LISTED FOR 75°C TERMINATING, SHALL BE:
60kW INVERTER #1, #6 GND. (AL)
50kW INVERTER #2, #6 GND.(AL)
25kW INVERTER #6, #6 GND.(AL)
12. REFER TO SHEETS E5.0 & E5.1 FOR REQUIRED SOLAR EQUIPMENT WARNING LABELING. REFER TO SHEET E1.0 FOR SOLAR EQUIPMENT LABELING LOCATIONS.
13. WHERE OUTDOORS & EXPOSED ABOVE GRADE, GALVANIZED RIGID STEEL CONDUIT TO BE INSTALLED BETWEEN LINE SIDE TAP & VERIFIABLE FUSED AC DISCONNECT.

The seal of the Bakersfield City School District. It is a circular emblem. The outer ring contains the text "BAKERSFIELD CITY SCHOOL DISTRICT" at the top and "WHERE THE CHILD COMES FIRST" at the bottom, separated by a small circle with a dot. The inner circle features a building with two arched windows and a clock, flanked by two laurel wreaths.

FOREFRONT POWER

100 Montgomery Street #725
San Francisco, CA 94104
855-204-5083

EET

ELECTRICAL CONTRACTORS AND ENGINEERS

The logo for Collins Electrical Company Inc. features a stylized 'C' composed of a red 'E' and a blue 'L'. To the right of the 'C', the word 'COLLINS' is written in large, bold, red, block letters. Below 'COLLINS', the words 'ELECTRICAL COMPANY INC.' are written in a smaller, blue, sans-serif font.

STRUCTURAL ENGINEERING

ARCHITECT OF RECORD

ARCHITECT / ENGINEER OF RECORD

NO.	REVISION	DATE
DATE:		02.20.25

PROJECT

BAKERSFIELD CITY SCHOOL DISTRICT

Lincoln Junior High School

815 Eureka Street
Bakersfield, CA 93305

FFP PROJECT #

CA-19-0207

SHEET TITLE

PV SYSTEM ELECTRICAL SITE PLAN

卷之三

ENLARGED MAIN ELECTRICAL SERVICE PLAN

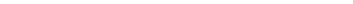
SCALE: 1/2" = 1'-0"

ENLARGED MAIN ELECTRICAL SERVICE PLAN

SCALE: 1/2" = 1'-0"

2

NORTH

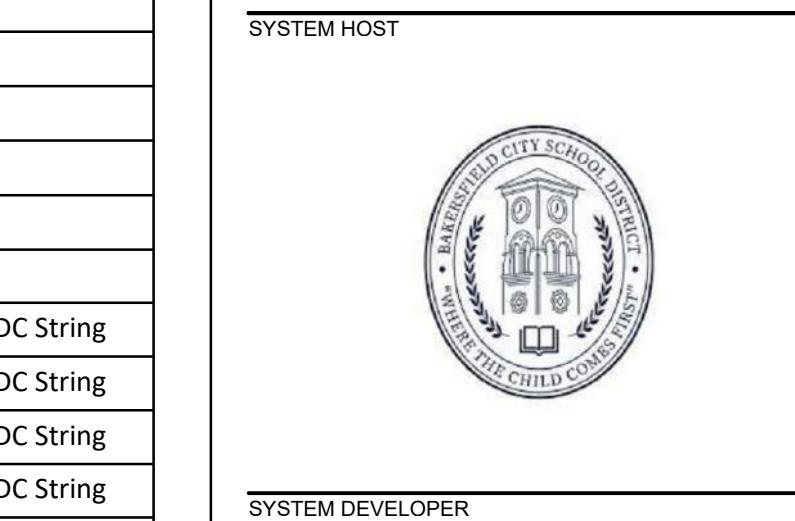


E 1.

PV SYSTEM FEEDER SCHEDULE

SEE GENERAL
ELECTRICAL NOTE 13

No.	Potential at Origin (PI) (Volts)	System	Design Current (Amps)	Raceway Type	Sets of Cond.	Conductor Trade Size	Conductor Cross-Sectional Area (CM)	Conductor Material	DC Conductor Material Constant (K)	Q	Distance (ft)	Voltage Drop (VD) (Volts)	Potential at Load (PI) (Volts)	Percent Voltage Drop (%VD)	Total Voltage Drop (%Vd AC)	Total Voltage Drop (%Vd AC + DC)	Conduit & Conductors	No.	Feeder Origin	Feeder Destination
F1	480	AC 3-Phase	295.3	Steel	1	600 KCMIL	600000	CU	12.9	1.1682	20	0.26	479.74	0.05	0.05	N/A	3-1/2" C-3#600 KCMIL, 1#1/0 NEUT. (CU) (27.84% FILL)	F1	'MSB'	AC Disconnect 'FD'
F2	480	AC 3-Phase	295.3	Steel	2	250 KCMIL	500000	AL	21.2	1.0153	10	0.22	479.78	0.05	0.10	N/A	TWO: 2-1/2" C-3#250 KCMIL, 1#1 GND. (AL) (27.7% FILL)	F2	AC Disconnect 'FD'	Panel 'S'
F3	480	AC 3-Phase	30.5	PVC	1	6	26240	AL	21.2	1.0000	110	4.69	475.31	0.98	1.08	1.35	1-1/2" C-3#6, 1#6 GND. (AL) (11.85% FILL)	F3	Panel 'S'	Inverter 'A1'
F4	480	AC 3-Phase	72.2	PVC	1	1	83690	AL	21.2	1.0000	110	3.48	476.52	0.73	0.83	1.09	1-1/2" C-3#1, 1#6 GND. (AL) (30.35% FILL)	F4	Panel 'S'	Inverter 'A2'
F5	480	AC 3-Phase	72.2	PVC	1	1	83690	AL	21.2	1.0000	255	8.08	471.92	1.68	1.78	2.24	1-1/2" C-3#1, 1#6 GND. (AL) (30.35% FILL)	F5	Panel 'S'	Inverter 'B'
F6	480	AC 3-Phase	60.2	PVC	1	3/0	167800	AL	21.2	1.0317	685	9.31	470.69	1.94	2.04	2.26	2" C-3#0, 1#2 GND. (AL) (31.97% FILL)	F6	Panel 'S'	Inverter 'C1'
F7	480	AC 3-Phase	60.2	PVC	1	3/0	167800	AL	21.2	1.0317	685	9.31	470.69	1.94	2.04	2.55	2" C-3#0, 1#2 GND. (AL) (31.97% FILL)	F7	Panel 'S'	Inverter 'C2'
A1-3	751.5	DC	13.84	n/a-DC	1	10	10380	CU	12.9	n/a	60	2.06	749.44	0.27	N/A	N/A	2#10 (CU)	A1-3	Inverter 'A1'	Worst Case DC String
A2-2	709.75	DC	13.84	n/a-DC	1	10	10380	CU	12.9	n/a	55	1.89	707.86	0.27	N/A	N/A	2#10 (CU)	A2-2	Inverter 'A2'	Worst Case DC String
B-7	709.75	DC	13.84	n/a-DC	1	10	10380	CU	12.9	n/a	95	3.27	706.48	0.46	N/A	N/A	2#10 (CU)	B-7	Inverter 'B'	Worst Case DC String
C1-6	709.75	DC	13.84	n/a-DC	1	10	10380	CU	12.9	n/a	45	1.55	708.20	0.22	N/A	N/A	2#10 (CU)	C1-6	Inverter 'C1'	Worst Case DC String
C2-6	709.75	DC	13.84	n/a-DC	1	10	10380	CU	12.9	n/a	105	3.61	706.14	0.51	N/A	N/A	2#10 (CU)	C2-6	Inverter 'C2'	Worst Case DC String



FOREFRONT
POWER

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San Francisco, CA 94104
855-204-5083

ELECTRICAL CONSTRUCTORS AND ENGINEERS

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San Diego, CA 92103
619.632.2883

ARCHITECT / ENGINEER OF RECORD

NO. REVISION DATE

DATE: 02.20.25

PROJECT
**BAKERSFIELD CITY
SCHOOL DISTRICT**
Lincoln Junior High School

815 Eureka Street
Bakersfield, CA 93305

FFP PROJECT #

CA-19-0207

SHEET TITLE

**PV SYSTEM
ELECTRICAL FEEDER
SCHEDULE**

SHEET NO.:

CEC AC kW CALCULATION					
Inverter Model Number	PV Module Model Number	PV Module Count	PV Module PTC (Watts)	Inverter Efficiency (%)	CEC AC kW Rating
CPS SCA60KTL-DO/US-480 [480V]	144HC-525 M10 SL Bifacial	288	494.4	98.5	140.251
CPS SCA50KTL-DO/US-480 [480V]	144HC-525 M10 SL Bifacial	204	494.4	98.5	99.345
CPS SCA25KTL-DO-R/US-480 [480V]	144HC-525 M10 SL Bifacial	54	494.4	98.0	26.164
	Total	546		Total	265.760

CANOPY DC STRING HOME RUNS			
MAXIMUM NUMBER OF CU #10 PV WIRES (PV WIRE + GROUND)			
CONDUIT TRADE SIZE	CONDUIT LENGTH 24" OR LESS (60% FILL)	CONDUIT LENGTH OVER 24" (40% FILL)	
3/4"	5	3	3
1"	9	6	6
1-1/4"	16	9	9
1-1/2"	22	9	9
2"	36	9	9
TABLE ASSUMING CU #10 PV WIRE WITH .26" O.D.			

PV SYSTEM SUMMARY										
MODULE MODEL	Helene 144HC-525 M10 SL Bifacial									
MODULE STC DC RATING	525W									
TOTAL MODULE COUNT	546									
TOTAL STC DC SYSTEM SIZE	286.65kW									
TOTAL NOMINAL AC SYSTEM SIZE	245.00kW									
TOTAL CEC-AC SYSTEM SIZE	265.760kW									
(2) CHINT POWER SYSTEMS AMERICA CPS SCA60KTL-DO/US-480 [480V]										
(2) CHINT POWER SYSTEMS AMERICA CPS SCA50KTL-DO/US-480 [480V]										
(1) CHINT POWER SYSTEMS AMERICA CPS SCA25KTL-DO-R/US-480 [480V]										
INVERTER MODELS										
MODULE TILT	7°									
ARRAY AZIMUTH	105° & 195°									
POINT OF SERVICE FAULT CURRENT CONTRIBUTION	287 AMPS									
POINT OF SERVICE RATING	65,000 AIC									

ELEC. EQUIPMENT ANCHORAGE NOTE:

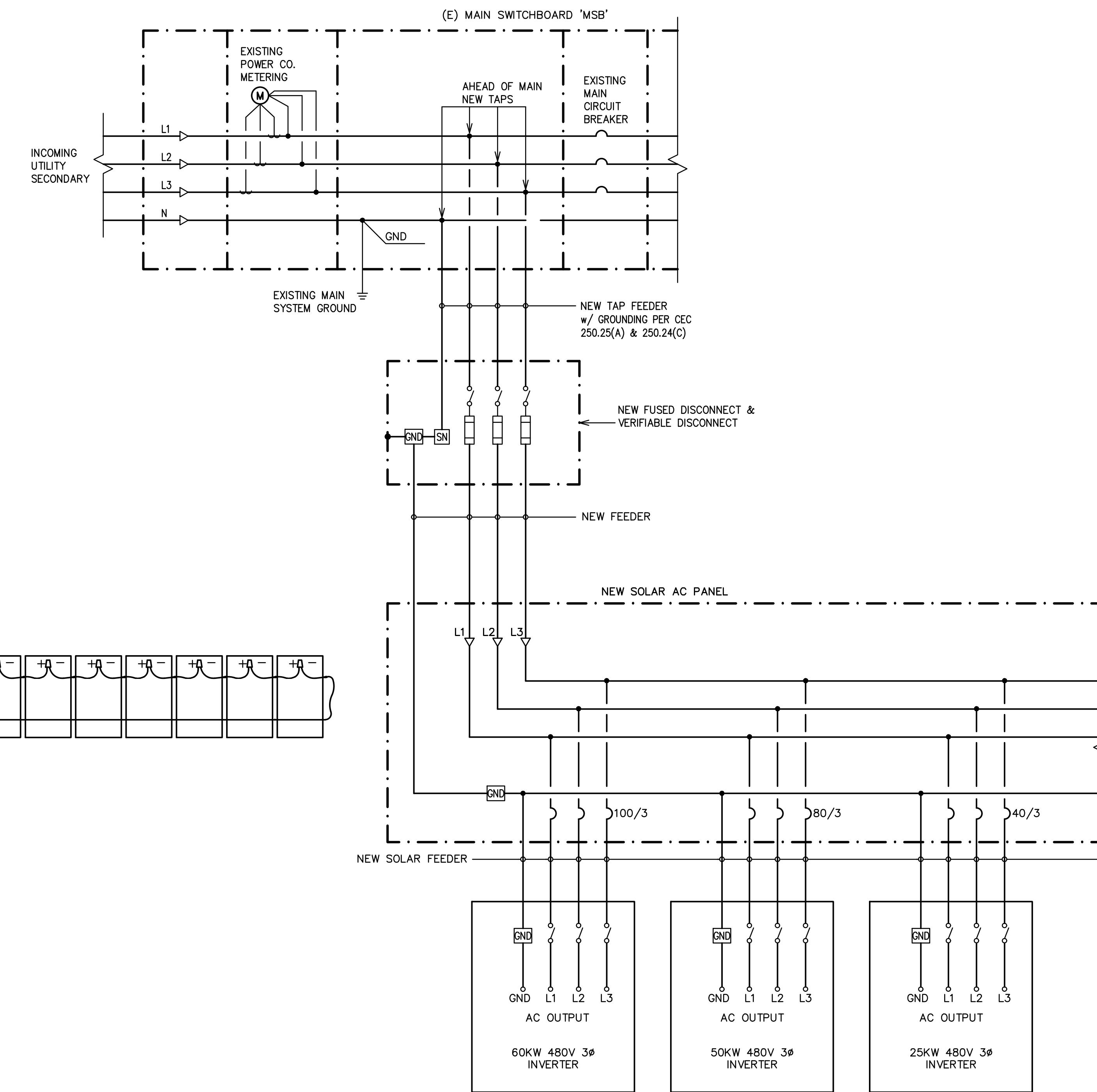
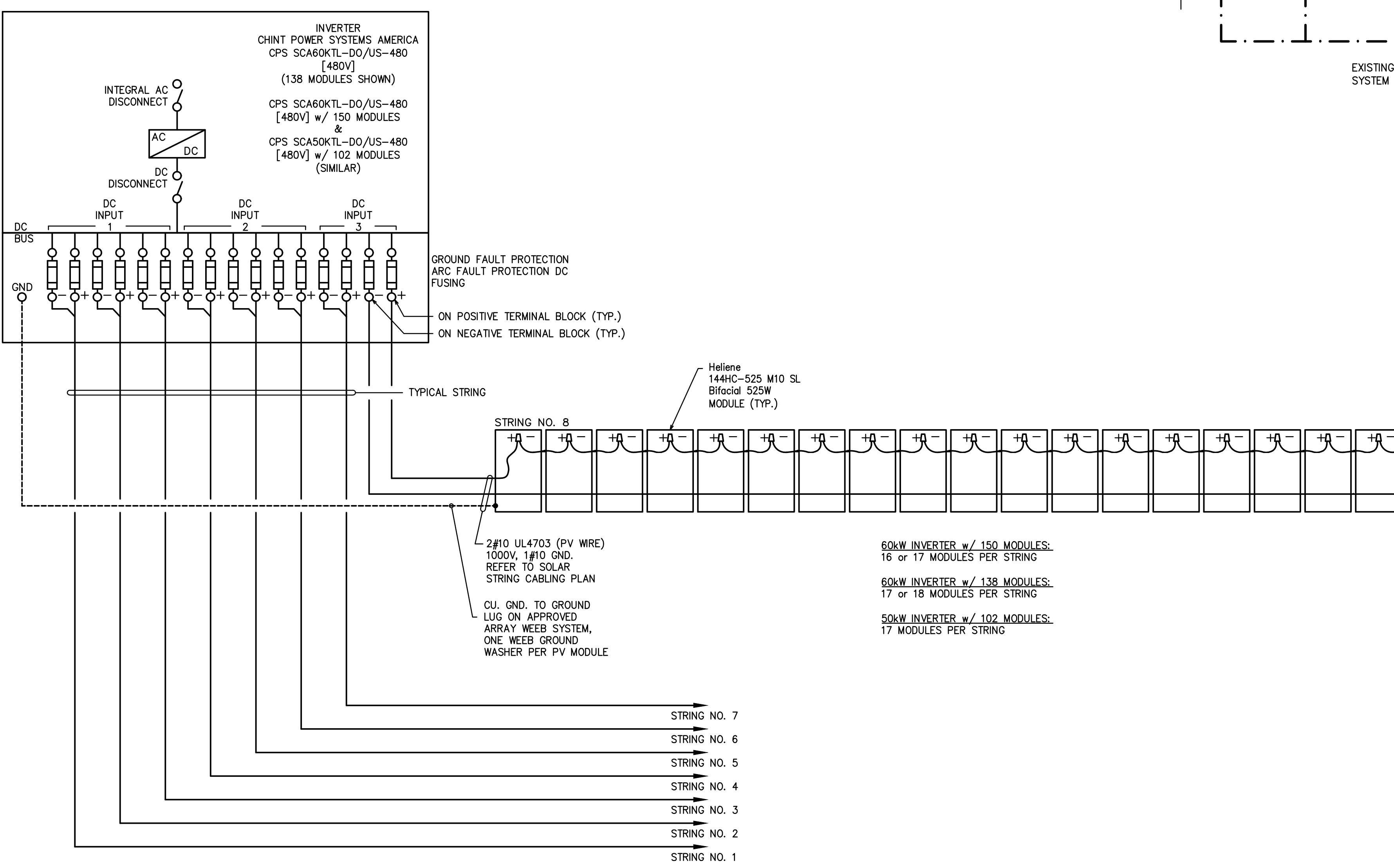
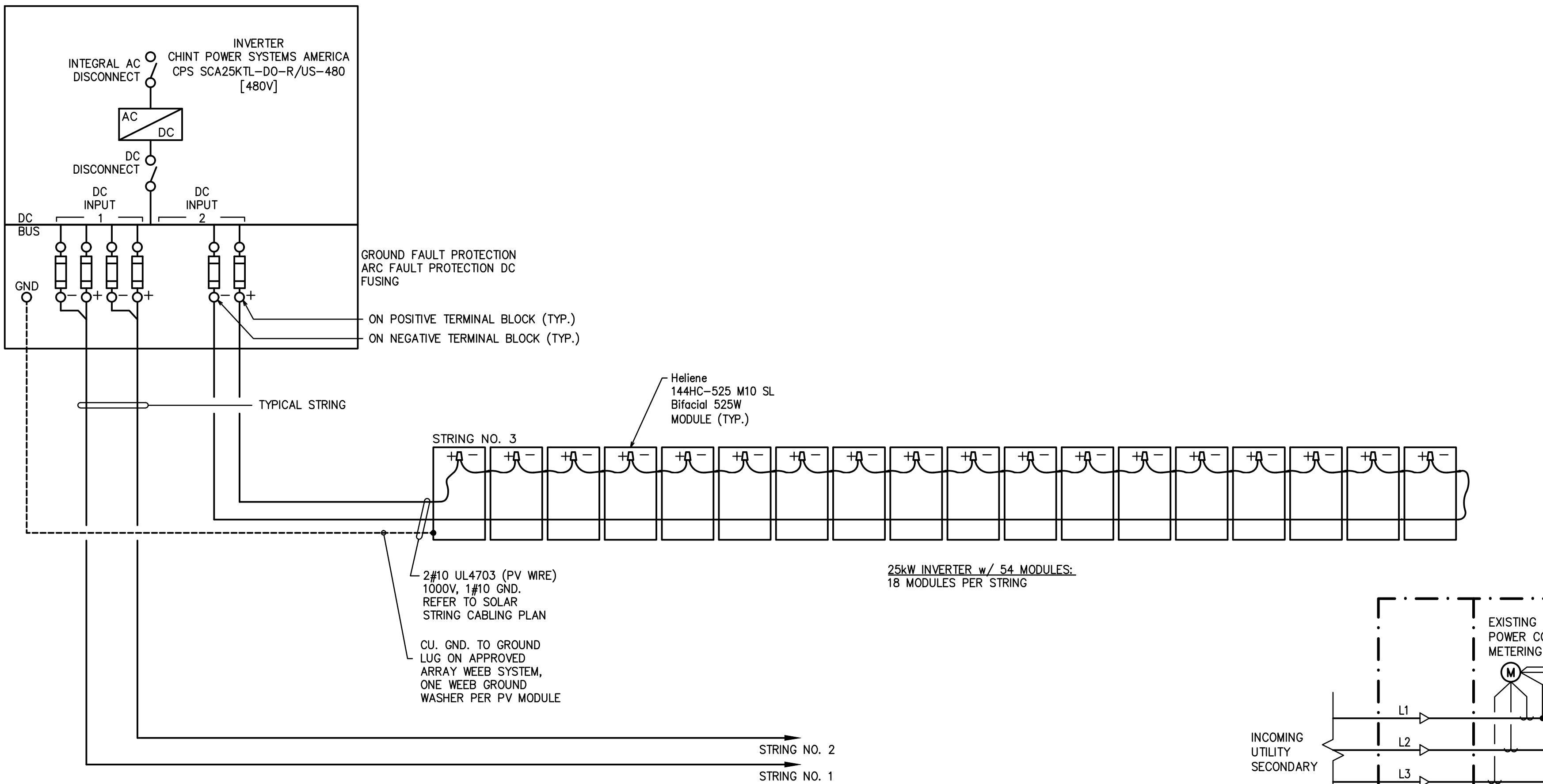
ALL ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2022 CBC, SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16, CHAPTERS 13, 26 AND 30:

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G. HARD WIRED) TO THE BUILDING ELECTRICAL UTILITY SERVICE. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
3. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS:

- A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.
- B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

THE ANCHORAGE OF ALL ELECTRICAL COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.



PV SYSTEM TYPICAL DC LINE DIAGRAM

SCALE: NONE

PV SYSTEM TYPICAL THREE LINE DIAGRAM

SCALE: NONE

SYSTEM HOST



SYSTEM DEVELOPER

FOREFRONT
POWER
100 Montgomery Street #725
San Francisco, CA 94104
855-204-5083

ELECTRICAL CONSTRUCTORS AND ENGINEERS

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ARCHITECT / ENGINEER OF RECORD



NO. REVISION DATE

DATE:
02.20.25

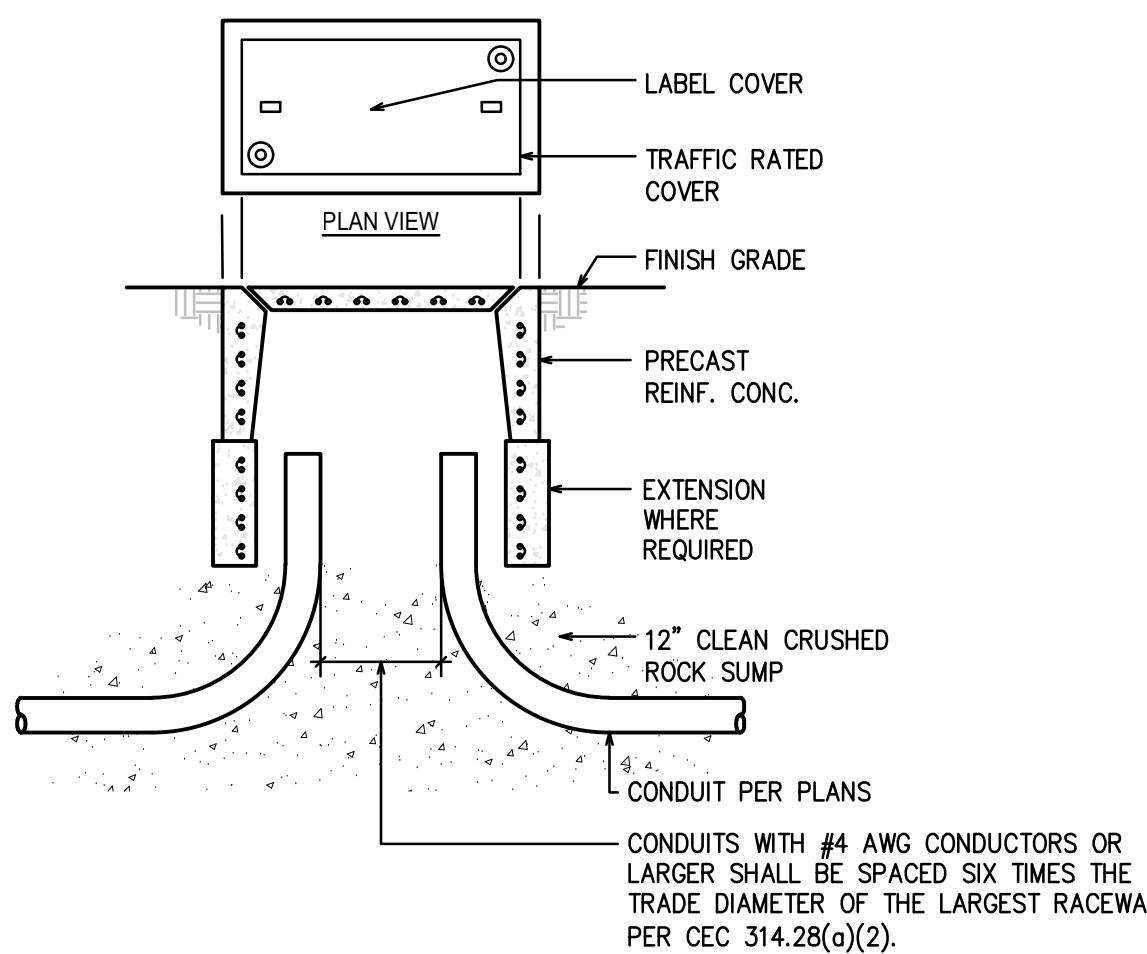
PROJECT
BAKERSFIELD CITY
SCHOOL DISTRICT
Lincoln Junior High School

815 Eureka Street
Bakersfield, CA 93305

FFP PROJECT #
CA-19-0207
SHEET TITLE

PV SYSTEM TYPICAL
ELECTRICAL THREE
LINE DIAGRAM

SHEET NO.:

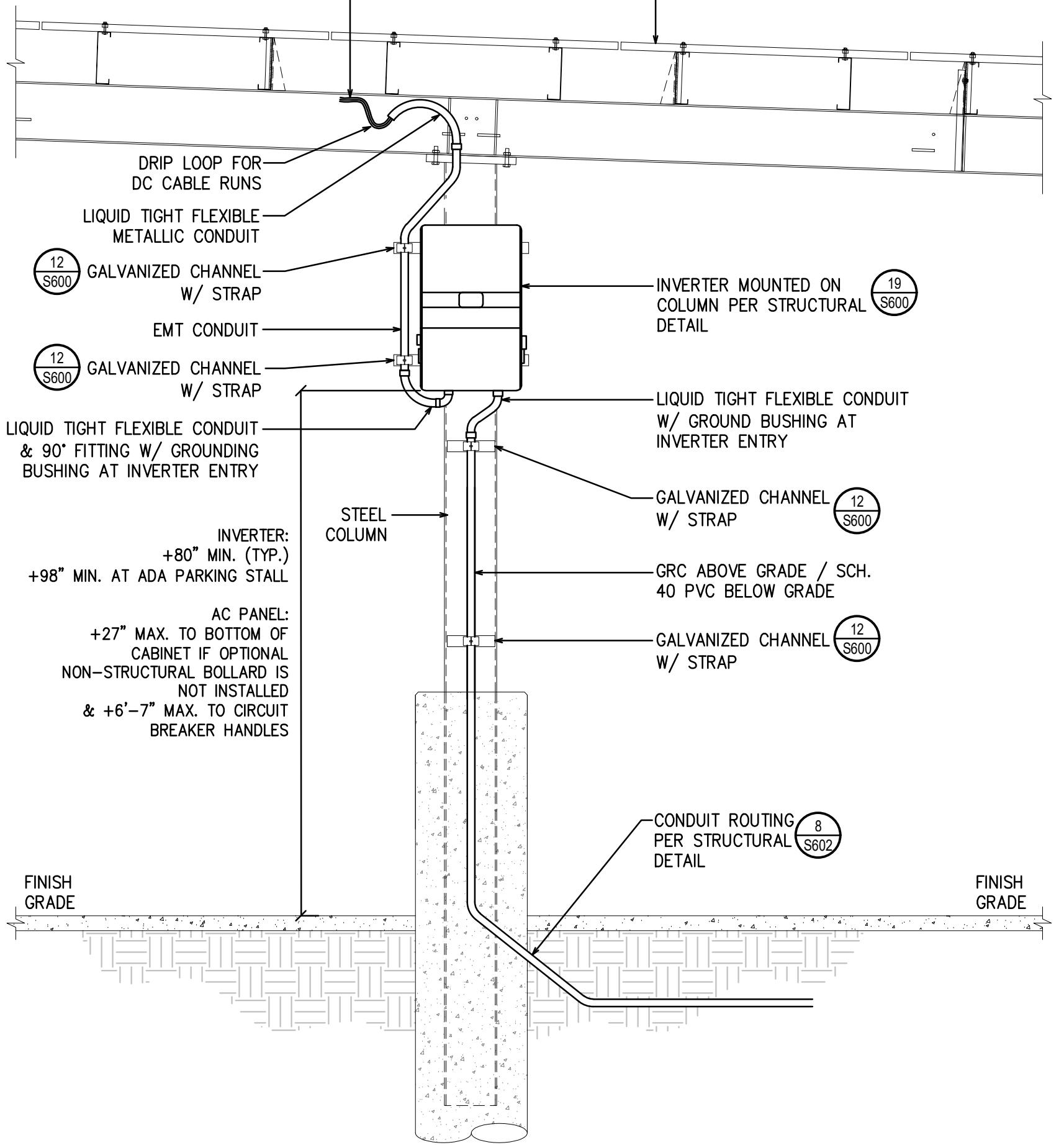


TYPICAL PULL BOX DETAIL

SCALE: NONE

DC WIRE MANAGEMENT:
(HOME RUNS)
RUN DC WIRES IN PURLIN C-CHANNEL & SUPPORT TO PURLIN WITH HELLERMANN-TYTON SS CLIPS OR EQUAL AT 8 FT. O.C. MAX.

DC WIRE MANAGEMENT:
(MODULE TO MODULE)
DC WIRES SUPPORTED TO PV MODULES WITH HELLERMANN-TYTON SS CLIPS OR EQUAL AT 8 FT. O.C. MAX. CABLE TIES TO BE USED WHEN WIRE COILS ARE NEEDED.

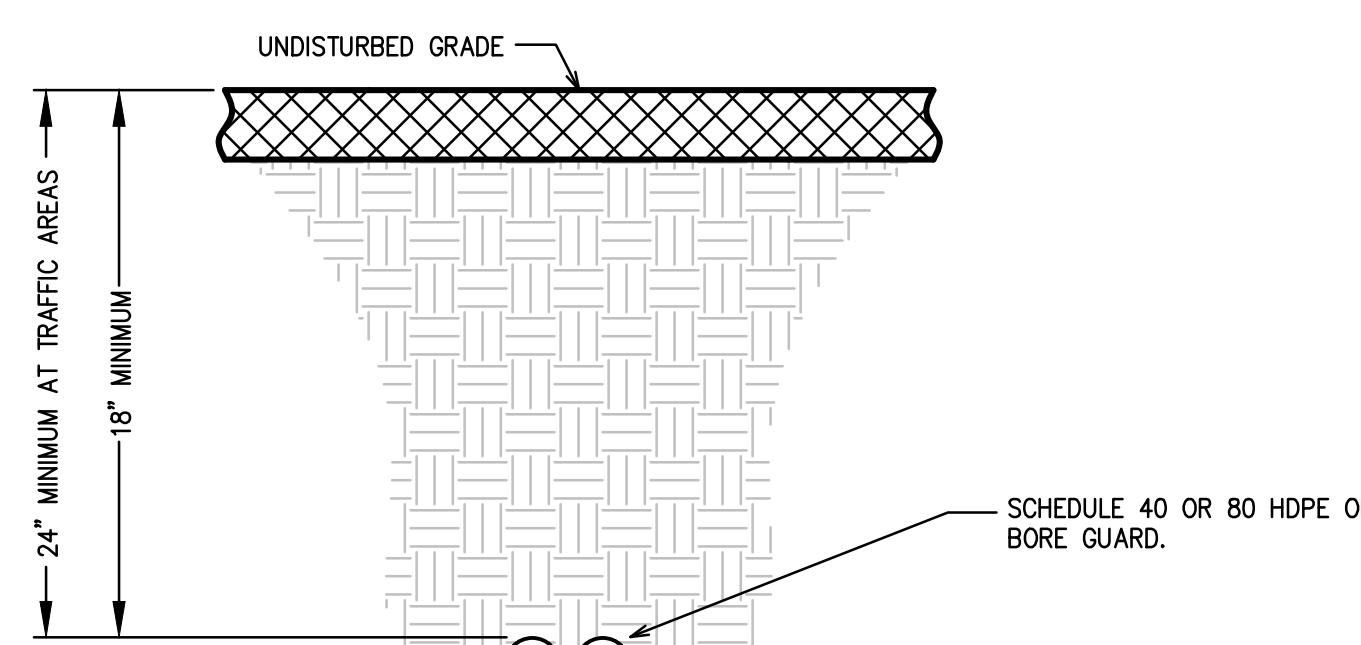


TYPICAL PV CANOPY UNDERGROUND CONDUIT RISER DETAIL

NO SCALE

NOTE: ONE REQUIRED PER ARRAY STRUCTURE

4



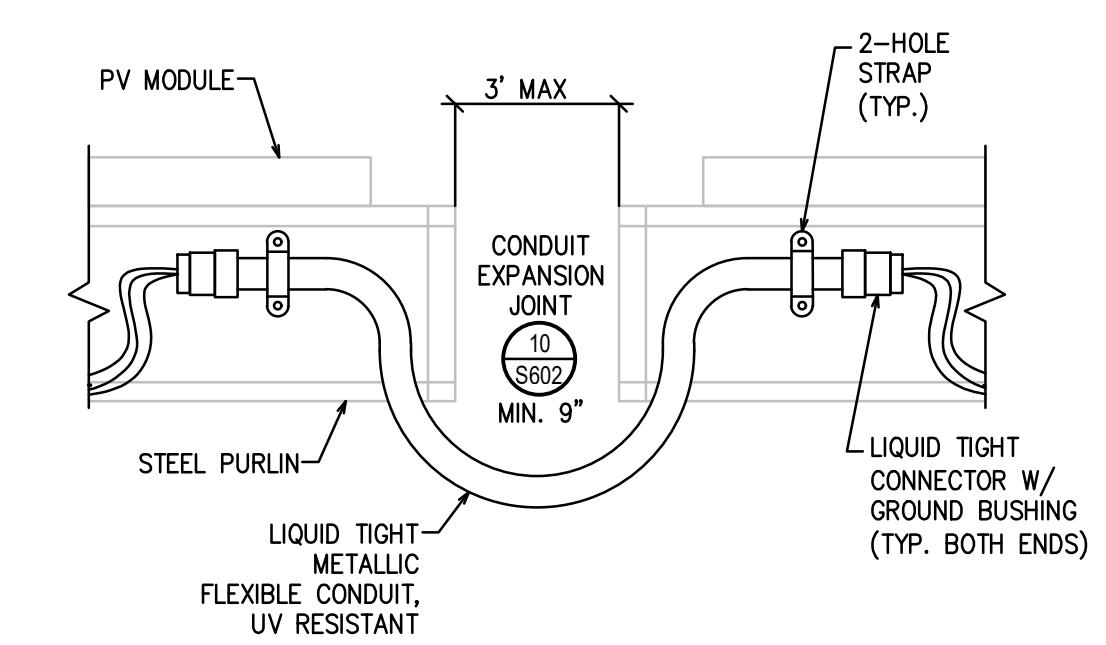
HORIZONTAL BORE DETAIL

NO SCALE

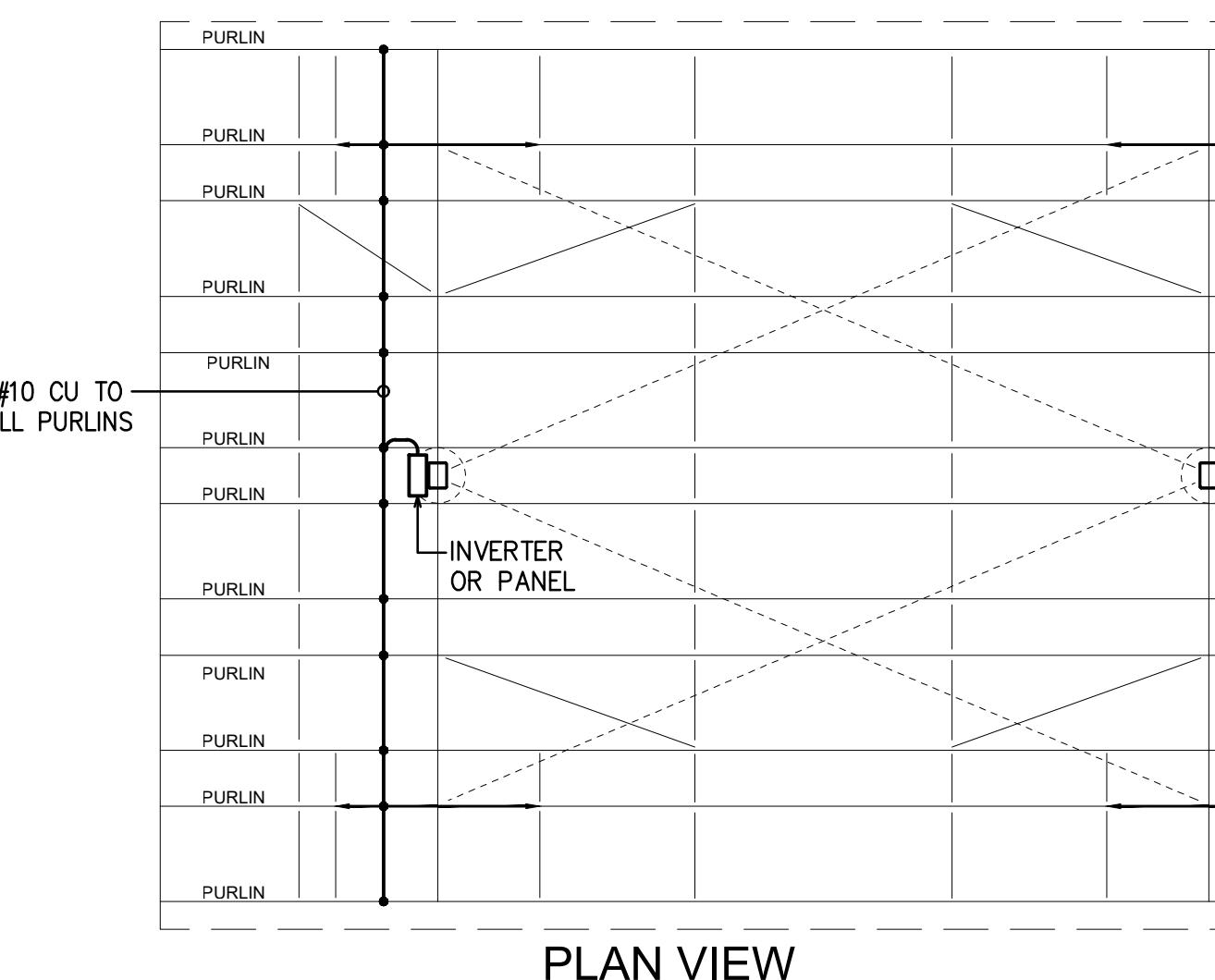
NOTE: BORING TYPICAL INSTALLATION METHOD

WIRING BRIDGE DETAIL

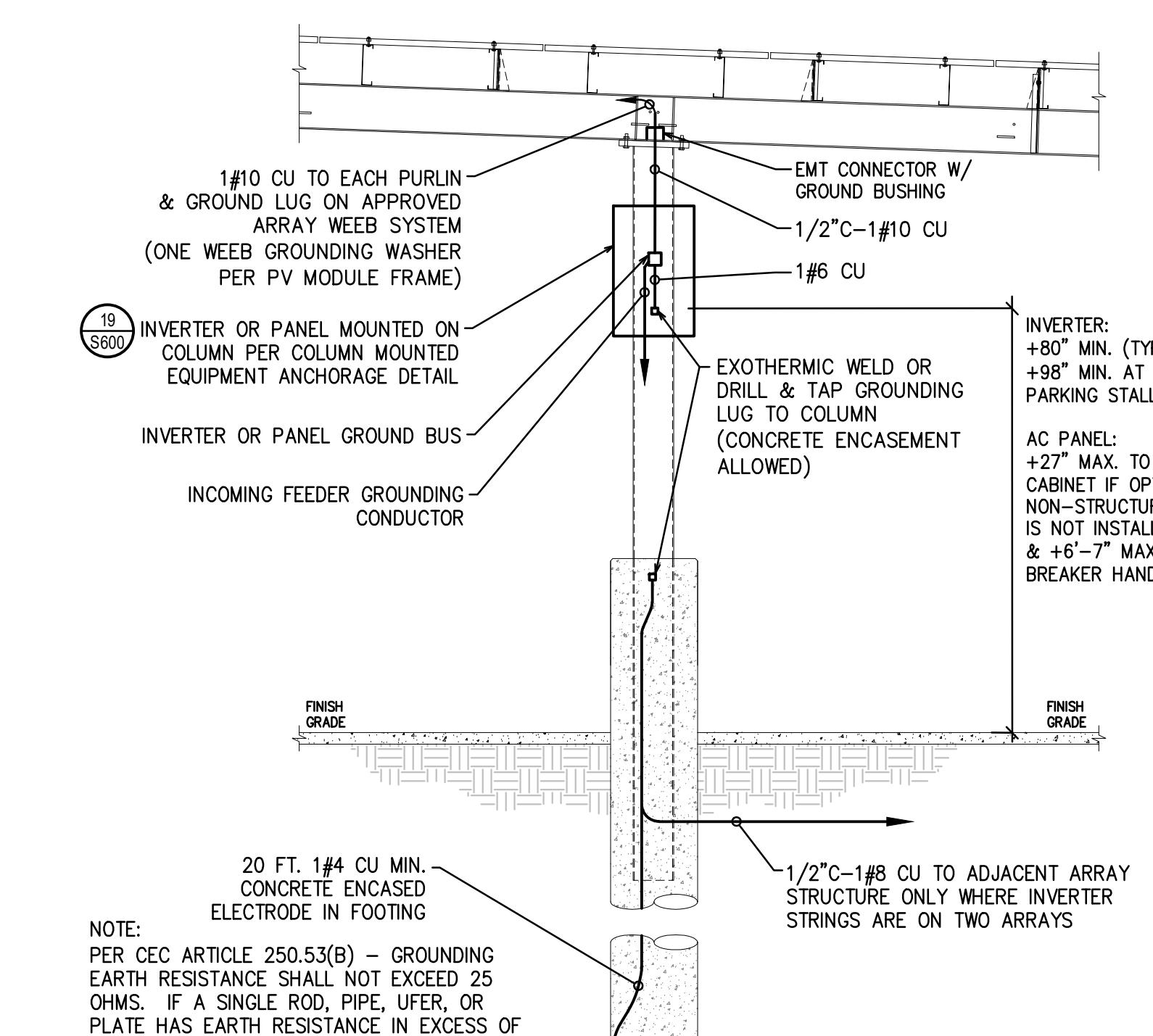
NO SCALE



UP TO 3' GAP



PLAN VIEW



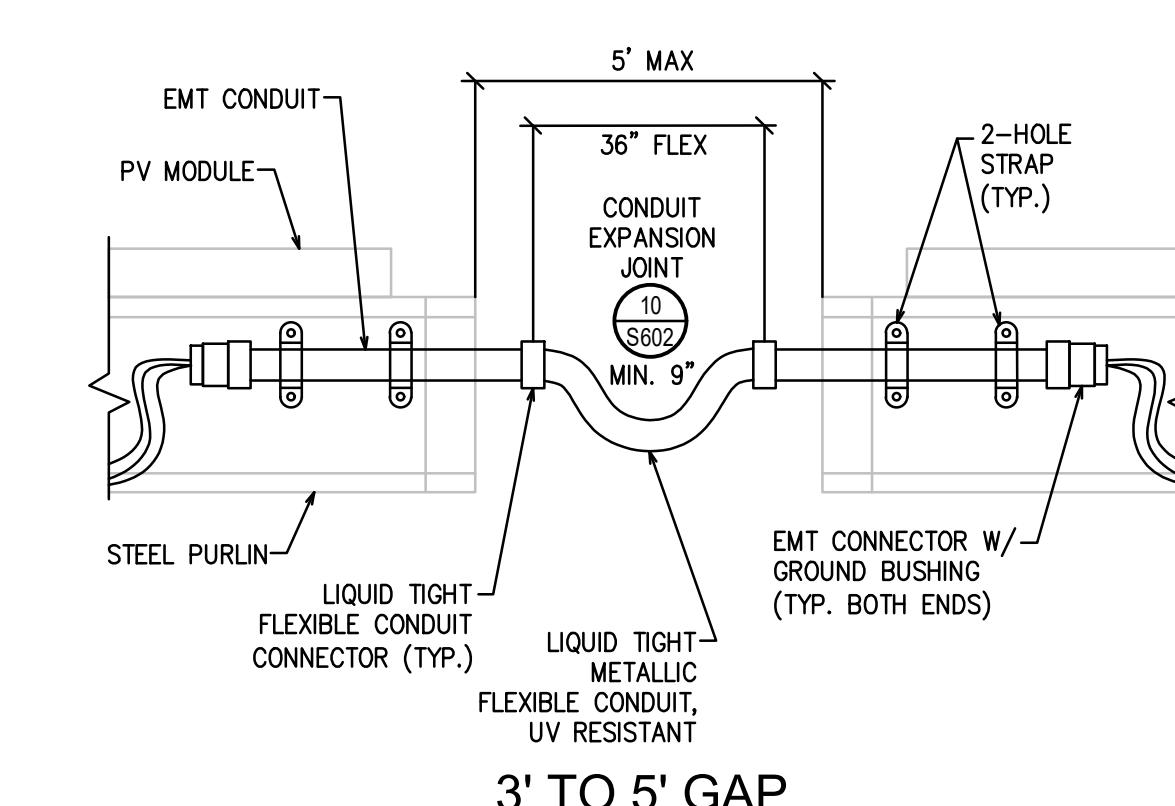
SECTION VIEW

PV CANOPY GROUNDING DETAIL

NO SCALE

NOTE: ONE REQUIRED PER ARRAY STRUCTURE

5



3' TO 5' GAP

NO. REVISION DATE

DATE: 02.20.25

PROJECT
BAKERSFIELD CITY SCHOOL DISTRICT
Lincoln Junior High School
815 Eureka Street
Bakersfield, CA 93305
FPP PROJECT # CA-19-0207
SHEET TITLE

ELECTRICAL DETAILS

SHEET NO.:

E4.0

SYSTEM HOST

SYSTEM DEVELOPER

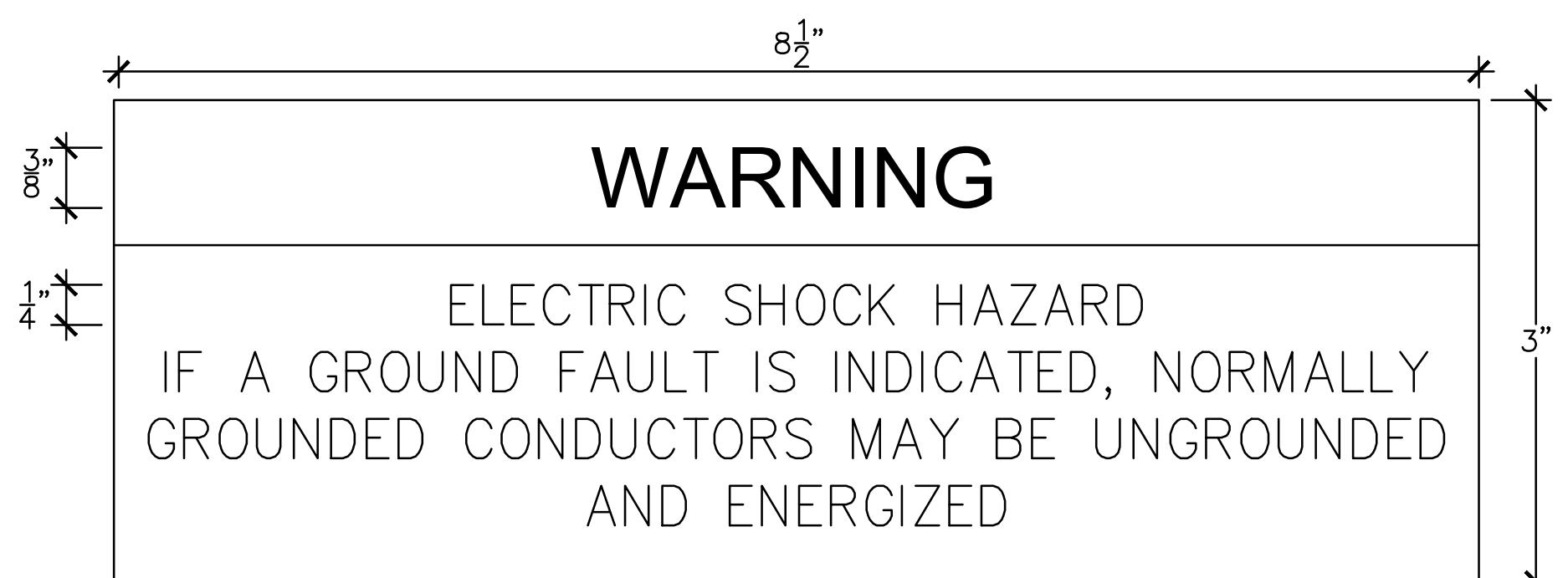
FOREFRONT POWER
100 Montgomery Street #725
San Francisco, CA 94104
855-204-5083
ELECTRICAL CONTRACTORS AND ENGINEERS

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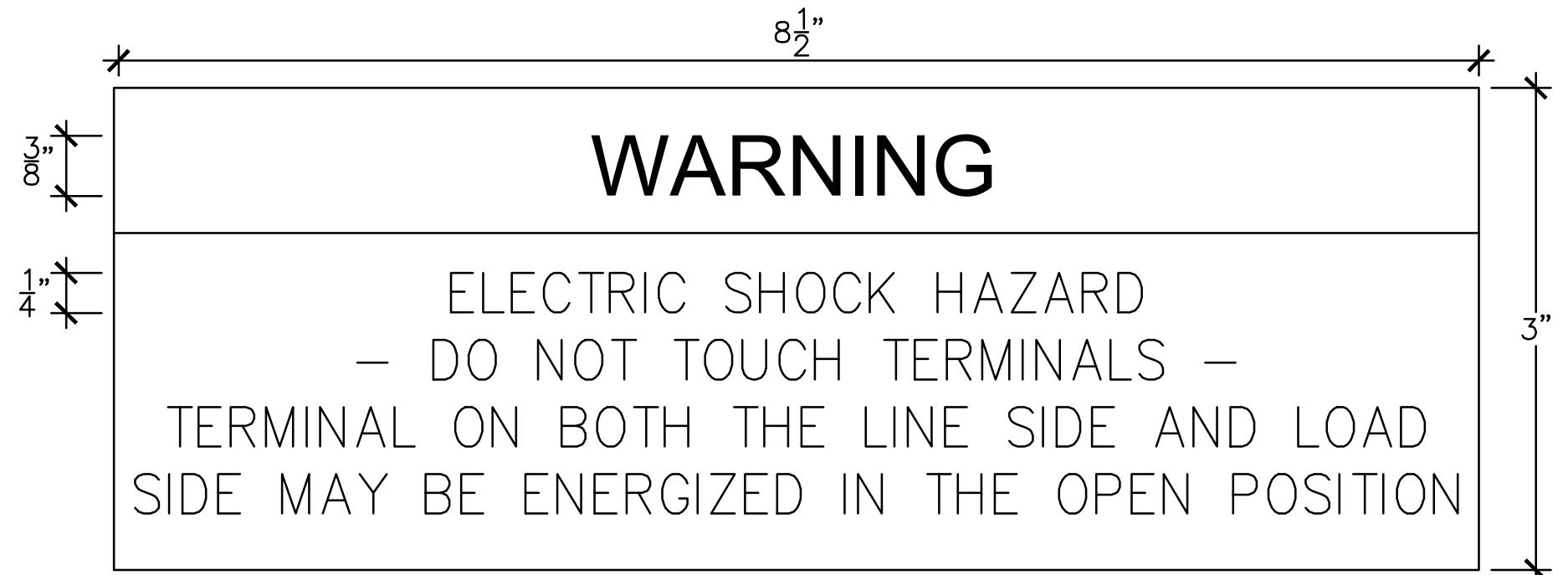

R.J. HARDIN
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA



LABEL - 1

SCALE: NONE

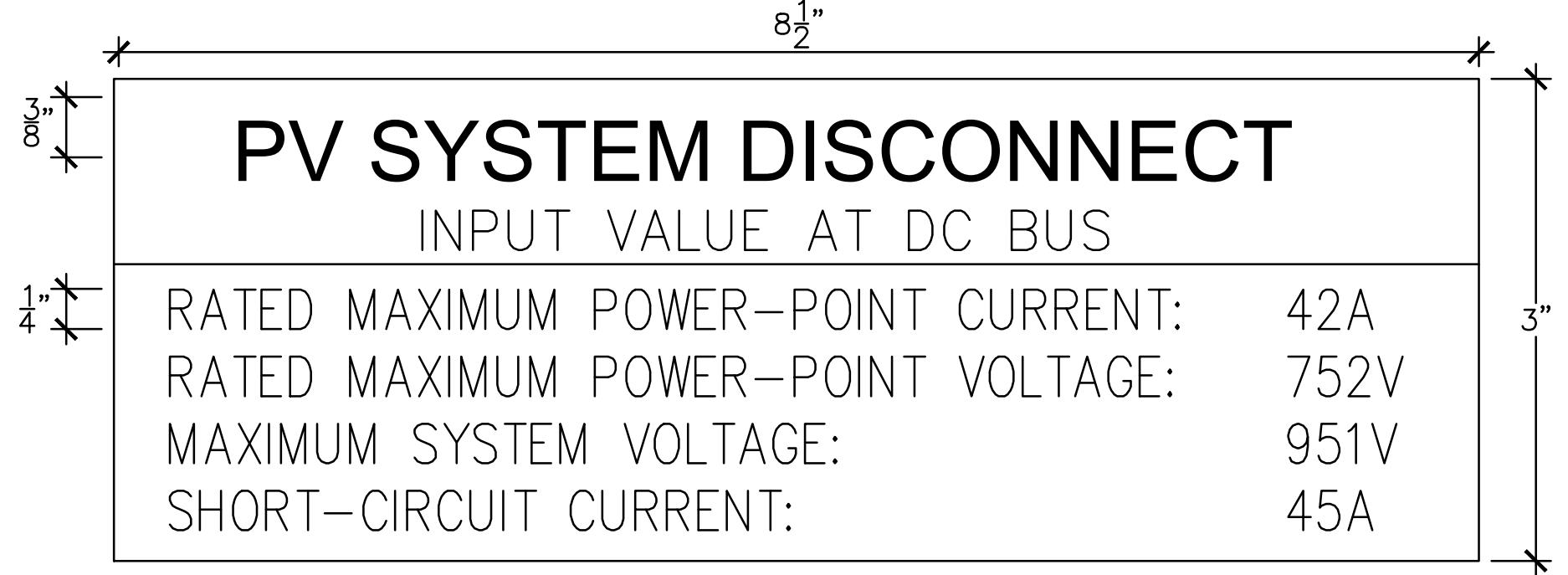
LOCATION:	INVERTERS
BACKGROUND	RED
LETTERING	WHITE
NOTES:	



LABEL - 2

SCALE: NONE

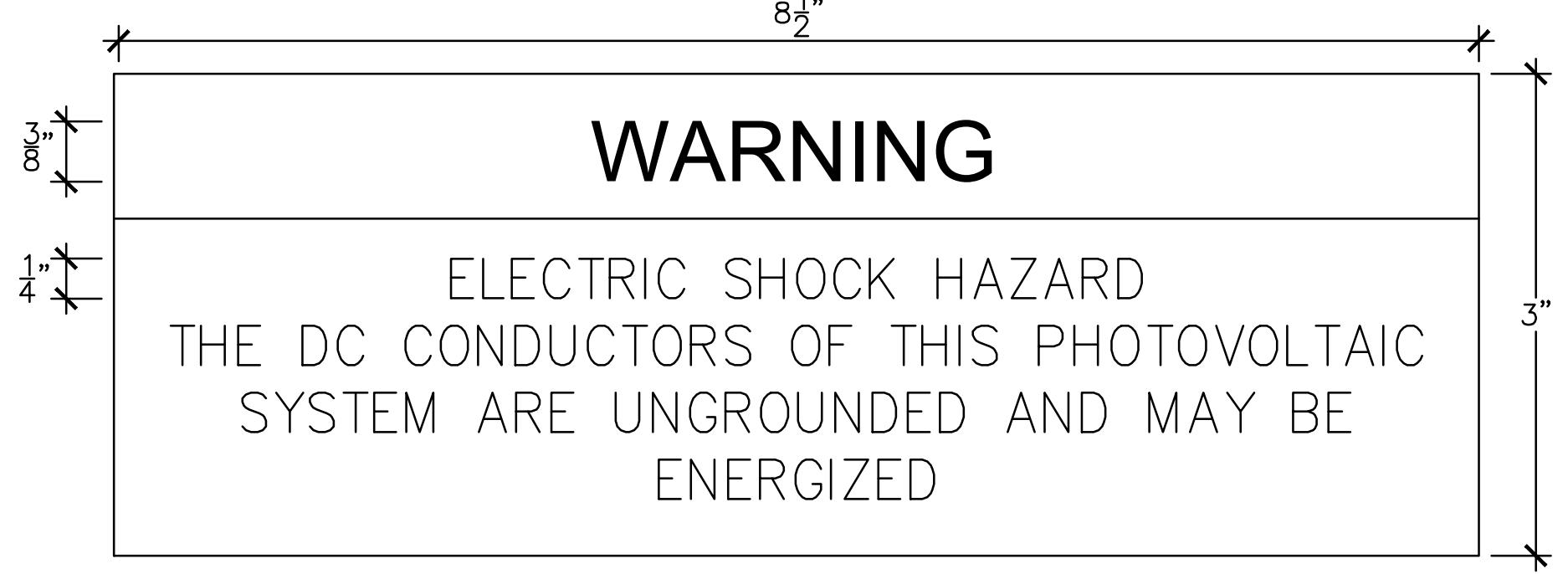
LOCATION:	AC DISCONNECTS & PANELBOARDS
BACKGROUND	RED
LETTERING	WHITE
NOTES:	



LABEL - 3

SCALE: NONE

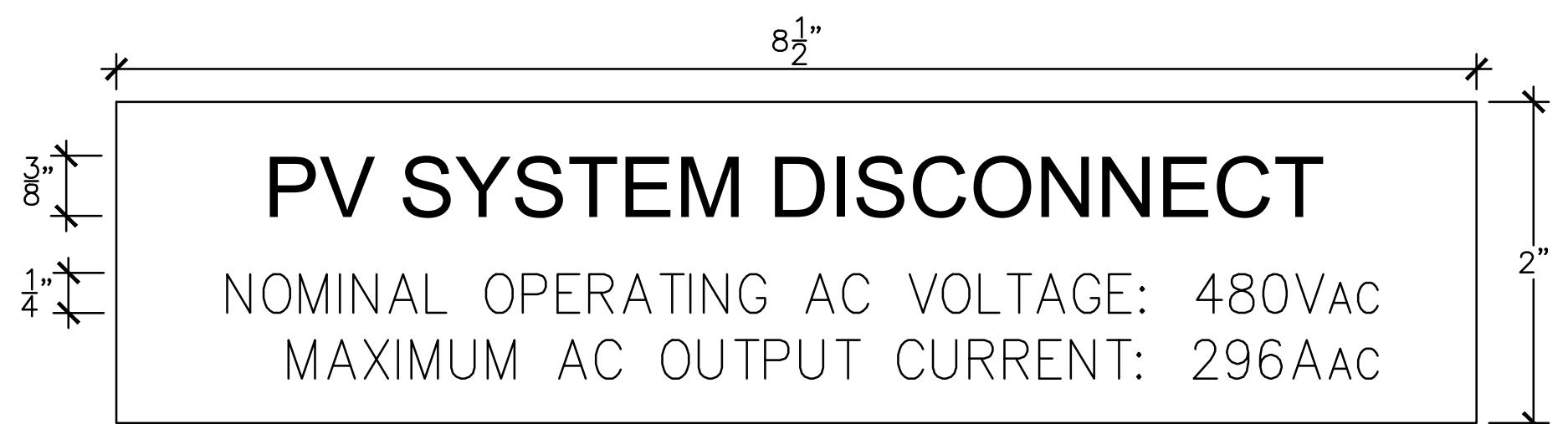
LOCATION:	60kW INVERTER w/ 138 MODULES
BACKGROUND	RED
LETTERING	WHITE
NOTES:	



LABEL - 4

SCALE: NONE

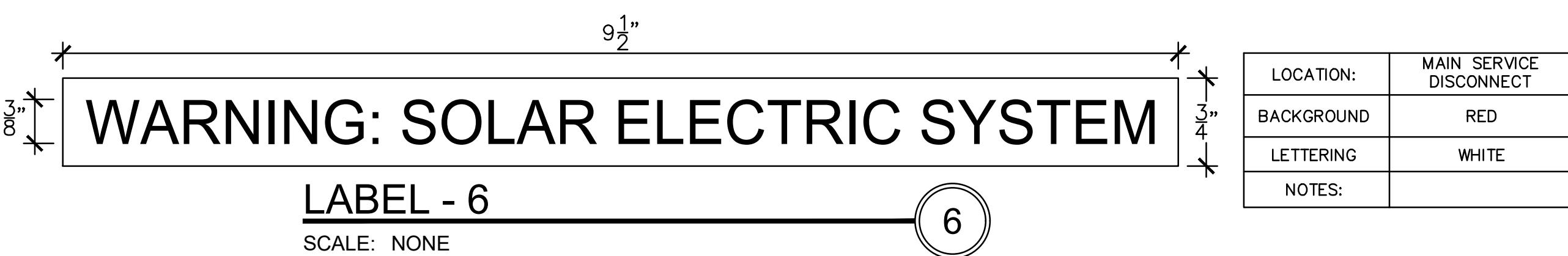
LOCATION:	INVERTERS
BACKGROUND	RED
LETTERING	WHITE
NOTES:	



LABEL - 5

SCALE: NONE

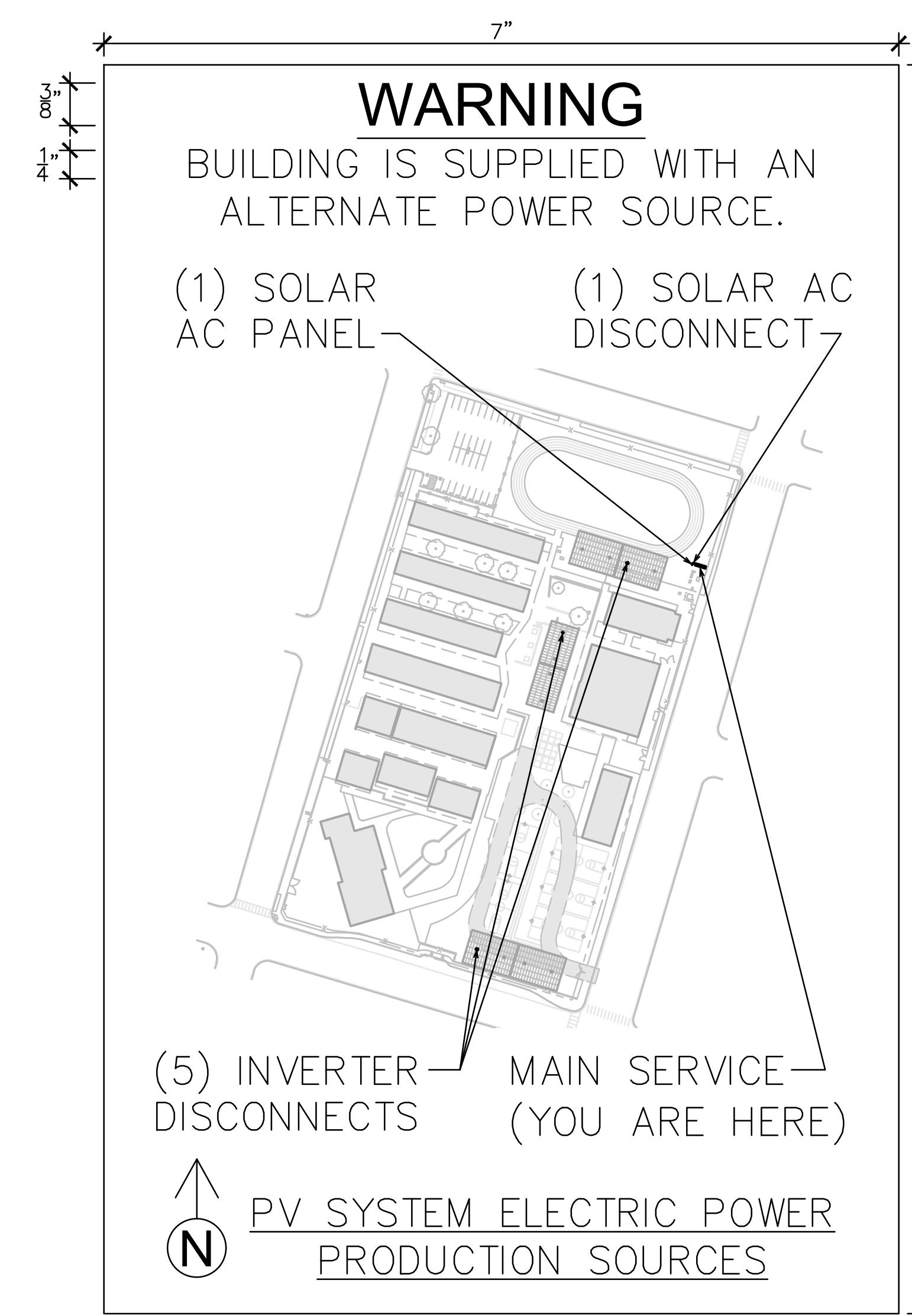
LOCATION:	AC DISCONNECT
BACKGROUND	RED
LETTERING	WHITE
NOTES:	



LABEL - 6

SCALE: NONE

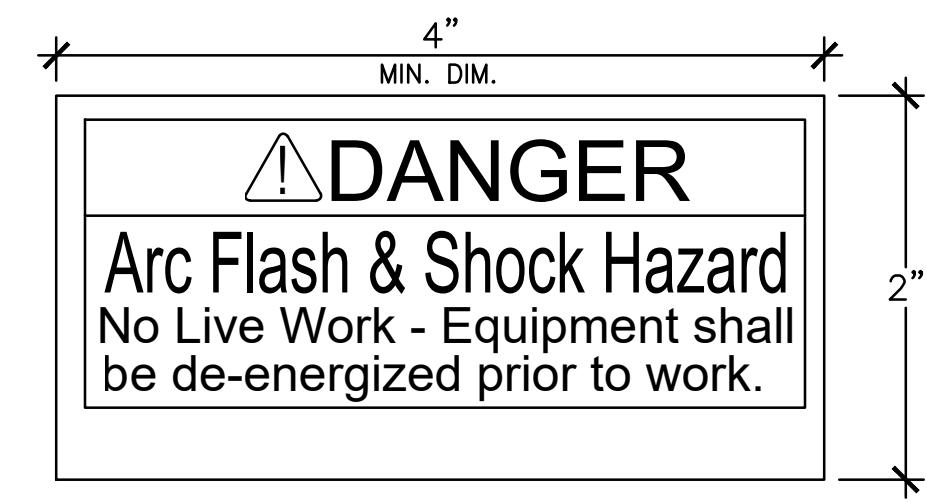
LOCATION:	MAIN SERVICE DISCONNECT
BACKGROUND	RED
LETTERING	WHITE
NOTES:	



LABEL - 7

SCALE: NONE

LOCATION:	MAIN SERVICE DISCONNECT
BACKGROUND	RED
LETTERING	WHITE
NOTES:	1 SIGN AT (E) SERVICE METER. PLACE ADDITIONAL SIGN AT SOLAR AC SYSTEM DISCONNECT WHERE NOT LOCATED WITHIN 25' & IN VIEW OF (E) SERVICE METER.



ARC FLASH WITH EXAMPLE TEXT AND DIMENSIONS

LABEL - 8

SCALE: NONE

LOCATION:	INVERTER DISCONNECTS, AC DISCONNECT, PANEL
BACKGROUND	WHITE, RED OR YELLOW
LETTERING	BLACK AND/OR RED
NOTES:	

E5.0

SYSTEM HOST



SYSTEM DEVELOPER



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San Francisco, CA 94104

855-204-5083

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DATE:

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PROJECT
BAKERSFIELD CITY SCHOOL DISTRICT
Lincoln Junior High School

815 Eureka Street
Bakersfield, CA 93305

FFP PROJECT #
CA-19-0207
SHEET TITLE

PV SYSTEM TYPICAL ELECTRICAL WARNING LABELS

SHEET NO.:

SYSTEM HOST



SYSTEM DEVELOPER



100 Montgomery Street #725
San Francisco, CA 94104
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PROJECT

BAKERSFIELD CITY
SCHOOL DISTRICT
Lincoln Junior High School

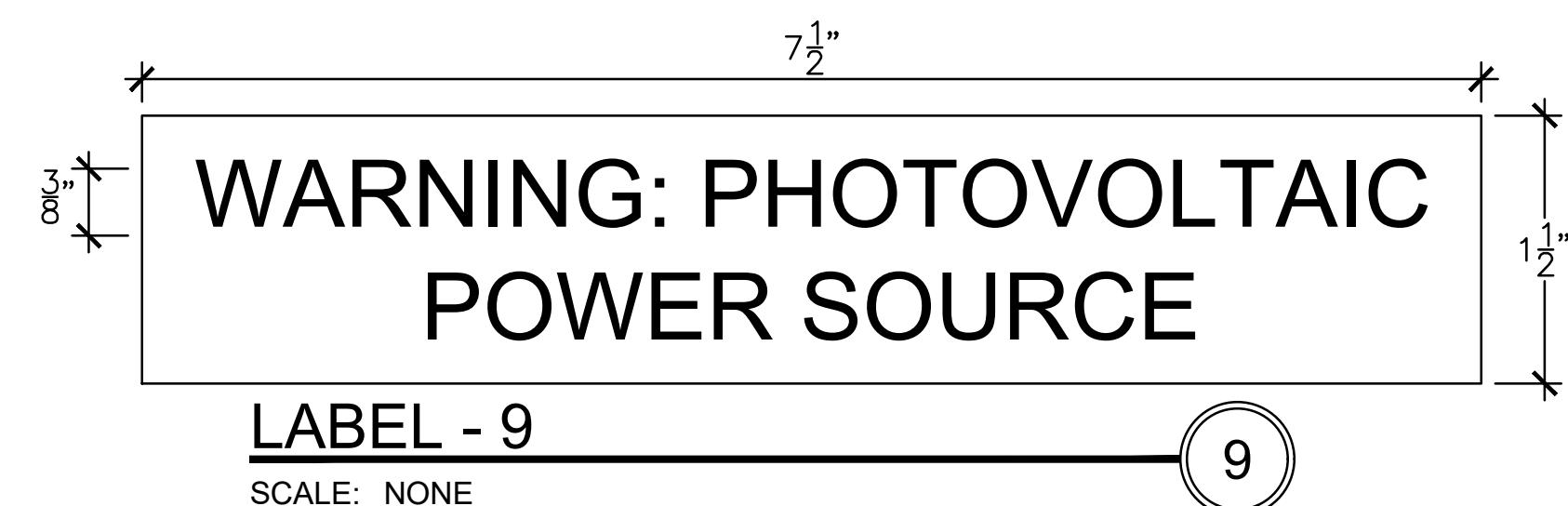
815 Eureka Street
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FFP PROJECT #
CA-19-0207

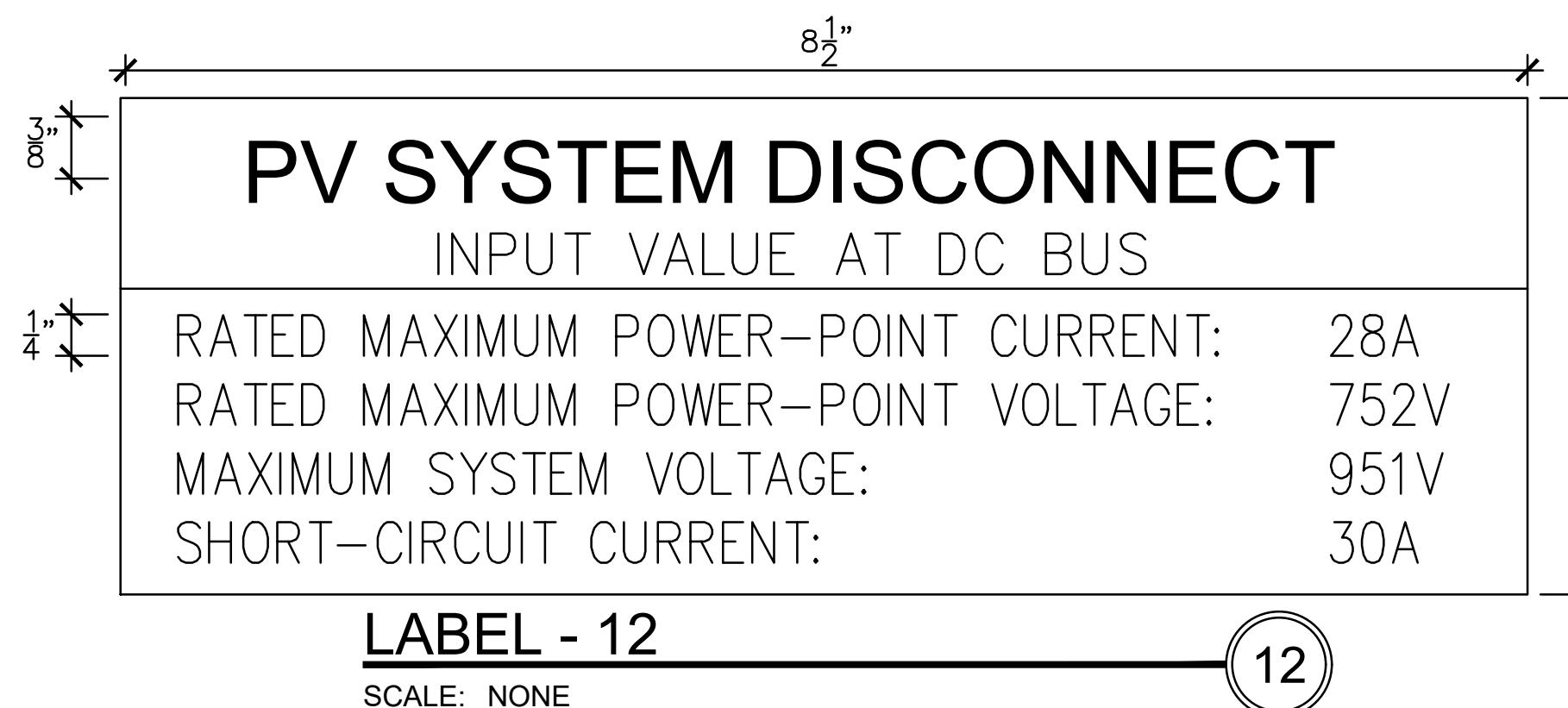
SHEET TITLE

PV SYSTEM TYPICAL
ELECTRICAL
WARNING LABELS

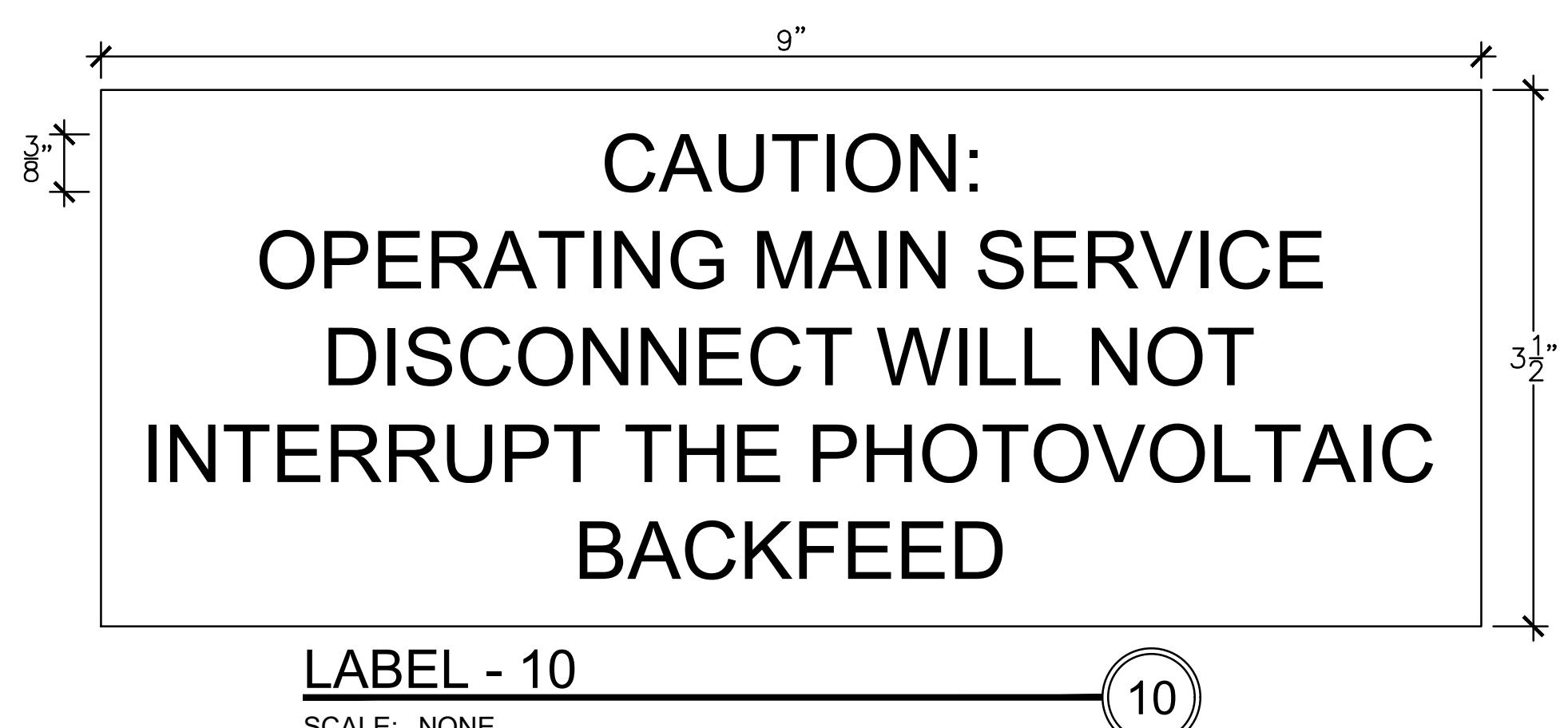
SHEET NO.:



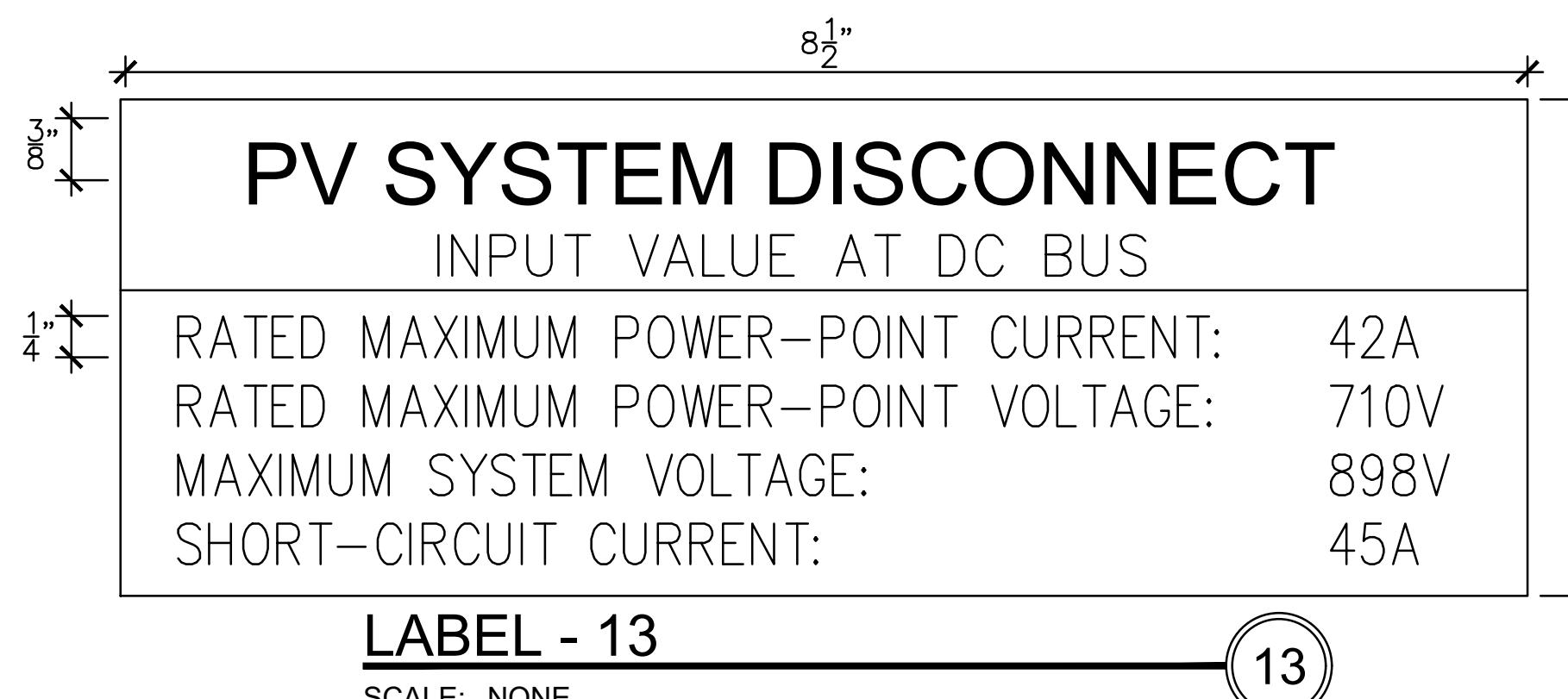
LOCATION:	AC & DC ENCLOSURES, RACEWAYS AND CONDUITS
BACKGROUND	RED
LETTERING	WHITE
NOTES:	EXPOSED CONDUIT EVERY 10 FT.



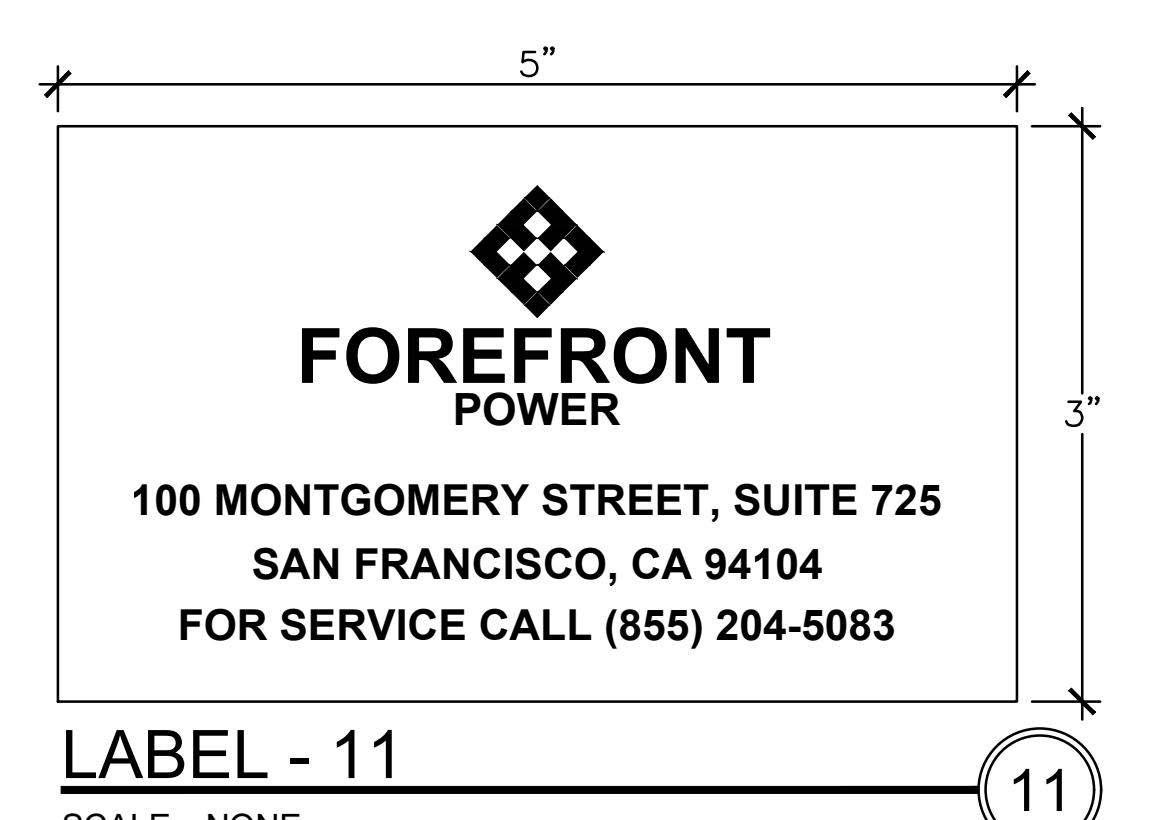
LOCATION:	25kW INVERTER
BACKGROUND	RED
LETTERING	WHITE
NOTES:	



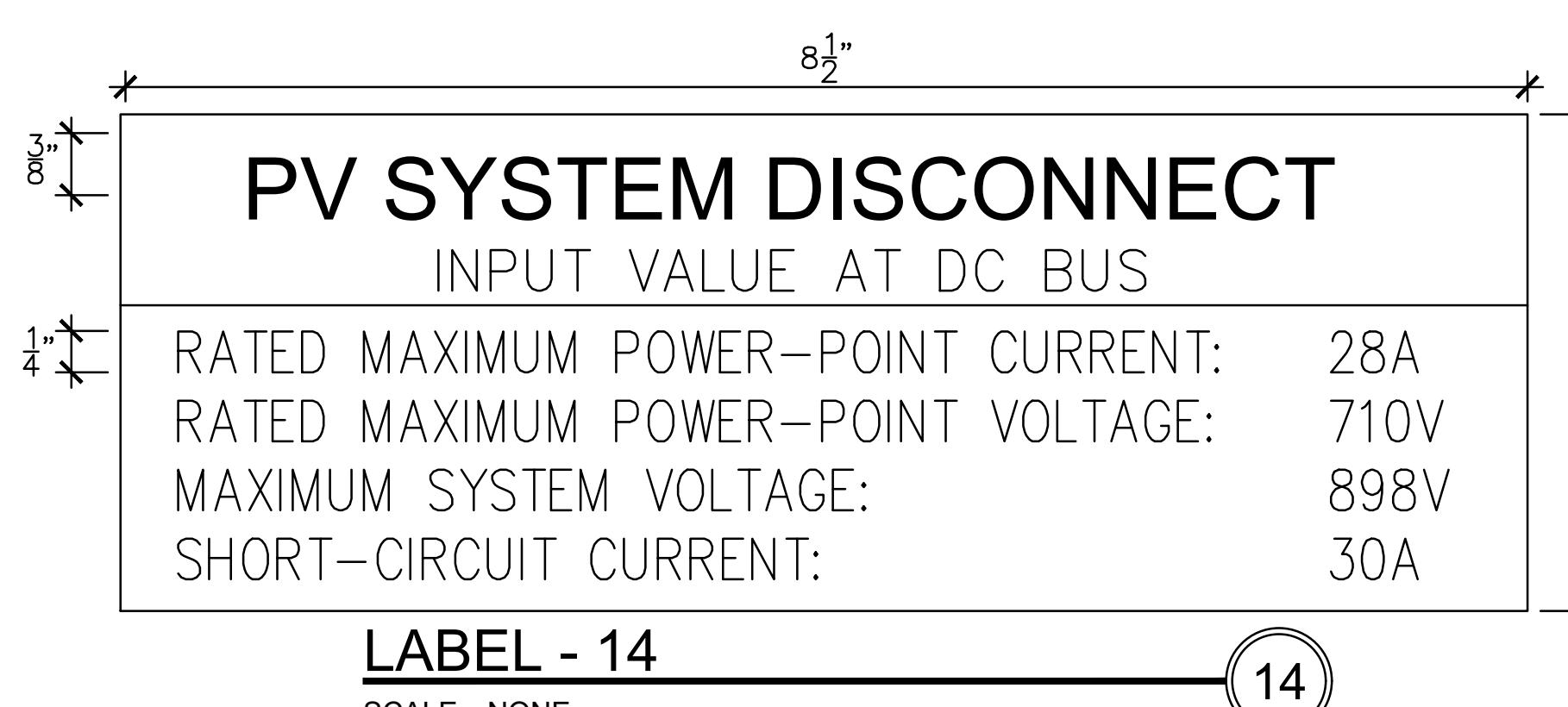
LOCATION:	MAIN SERVICE DISCONNECT
BACKGROUND	RED
LETTERING	WHITE
NOTES:	



LOCATION:	60kW INVERTER w/ 150 MODULES
BACKGROUND	RED
LETTERING	WHITE
NOTES:	



LOCATION:	AC DISCONNECT, PANELS, TRANSFORMERS, DAS, & DISCONNECT
BACKGROUND	BLUE
LETTERING	WHITE
NOTES:	



LOCATION:	50kW INVERTERS
BACKGROUND	RED
LETTERING	WHITE
NOTES:	



25 kW-480 V, 1000 Vdc String Inverters for North America

The CPS 25 kW-480 V three-phase string inverter is designed for rooftop and carport applications. These units are high performance, advanced, and reliable inverters designed specifically for the North American environment and grid. High efficiency at 98.5% peak and 98.0% CEC, wide operating voltages, broad temperature ranges, and a NEMA Type 4X enclosure enable this inverter platform to operate at high performance across many applications. The CPS 25 kW-480 V product ships with a Rapid Shutdown wire box, fully integrated and separable with touch-safe fusing, monitoring, and AC and DC disconnect switches. The integrated PLC transmitter in the Rapid Shutdown Wire-box enables PVRSS-certified module-level rapid shutdown when used with APS RSD-5-PLC/RSD-5 products. The CPS FlexOM Gateway enables monitoring, controls and remote product upgrades.

Key Features

- NEC 2017/2020 PVRSS-certified rapid shutdown
- NEC 2017/2020-compliant & UL-listed arc-fault circuit protection
- 15°-90° mounting orientation for low profile roof installs
- 15° tilt inverter Rack Assembly available from CPS
- Optional FlexOM Gateway enables remote firmware upgrades
- Integrated AC & DC disconnect switches
- 2 MPPTs with 3 inputs each for maximum flexibility
- Copper and Aluminum compatible AC connections
- NEMA Type 4X outdoor rated, tough tested enclosure
- UL 1741-SA certified to CA Rule 21, including SA14 - SA18
- UL 1741-SB and IEEE 1547-2018 certified
- Separable wire-box design for fast service
- Standard 10-year warranty with extensions to 20 years
- Generous 1.5 DC/AC inverter load ratio



CPS SCA25KTL-DO-R/US-480



SCA25KTL (480V) Rapid Shutdown Wire-box



CE

FC

This device complies with part 15 of the FCC Rules

Chint Power Systems America 1380 Presidential Drive, Suite 100, Richardson, TX 75081

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Technical Data

Model Name	CPS SCA25KTL-DO-R/US-480
DC Input	
Max. PV power	37.5 W (22 kW per MPPT)
Max. DC input voltage	1000 Vdc
Operating DC input voltage range	200-950 Vdc
Start-up DC input voltage / power	330 V / 80 W
Number of MPPTs	2
MPPT voltage range for Pnom @ PF > 0.99	560-850 Vdc
Max. PV short-circuit current ¹	72 A (5 per MPPT)
Number of DC inputs	6 inputs, 3 per MPPT
DC disconnection type	Load-rated DC switch
DC surge protection	Type II MOV
AC Output	
Rated AC output power @ PF=0.99 to ±0.91 ²	25 kW
Max. AC apparent power	25 kVA
Rated output voltage	480 Vac
Output voltage range ³	422-528 Vac
Grid connection type ⁴	3Ø / PE / N (neutral optional)
Max. AC output current @ 480 Vac	30.5 A
Rated output frequency	60 Hz
Output frequency range ⁵	57-63 Hz
Power factor	>0.99 (±0.8 adjustable)
Current TRD @ rated load	< 3%
Max. fault current contribution (1 cycle RMS)	31 A (1.02 PU)
Max. OCPD rating	30 A
AC disconnection type	Load-rated AC switch
AC surge protection	Type II MOV
System	
Topology	Transformerless
Max. efficiency	98.5%
CEC efficiency	98.0%
Standby / night consumption	< 1 W
Environment	
Enclosure protection degree	NEEMA Type 4X
Cooling method	Variable speed cooling fans
Operating temperature range	-22°F to 140°F (-30°C to 60°C)
Non-operating temperature range ⁶	-40°F to 158°F (-40°C to 70°C)
Operating humidity	0-100%
Operating altitude	13123 ft / 4000 m (derating 5843 ft / 3000 m)
Audible noise	< 60 dBA @ 1 m and 77°F (25°C)
Display and Communication	
User interface and display	LED indicators, Wi-Fi, and App
Inverter monitoring	SunSpec, Modbus RS485
Site-level monitoring	CPS FlexOM Gateway (1 per 32 inverters)
Modbus data mapping	CPS
Remote diagnostics / firmware upgrade functions	Standard / (with FlexOM Gateway)
Mechanical	
Dimensions (H x W x D)	Inverter: 15.95 x 7.87 x 8.7 in (405 x 400 x 200 mm) Wire Box: 10.24 x 7.87 x 8.7 in (260 x 400 x 200 mm)
Weight	Inverter: 16.0 lb (7.2 kg) Wire Box: 12.0 lb (5.4 kg)
Mounting / installation angle ⁴	15 to 90° from horizontal (vertical or angled)
AC termination	Screw clamp (wire range: #8-#2 AWG CU/AL)
DC termination ⁵	Screw clamp (wire range: #14-#8 AWG CU)
Fused string inputs (5 per MPPT)	20 A fuses provided (fuse values up to 30 A acceptable)
Safety	
Certifications and standards	UL 1741-SA/SB Ed. 3, UL 16998, UL1998, CSA-C22.2 NO.107.1-01, IEEE 1547-2018, FCC Part 15
Selectable grid standards	IEEE 1547a-2014, IEEE 1547-2018, CA Rule 21, ISO-NE, HECO
Smart-grid features	Volt-RideThru, Freq-RideThru, Ramp-Rate, Specified-PF, Volt-VA, Freq-Watt, Volt-Watt
Warranty	
Standard	10 years
Extended terms	15 and 20 years

¹The sum of parallel-connected PV module short-circuit currents.
²The output voltage range³ and output frequency range⁵ may differ according to the specific grid standard.
³See user manual for further requirements regarding non-operating conditions.
⁴Double pole circuit breaker required.
⁵Wire box only includes fuses and holders on the positive polarity, compliant with NEC 2017/2020 Section 690.9C.
⁶Firmware version 5.00 or later required.



Datasheet

144HC M10 SL Bifacial Module

50/60 kW, 1000 Vdc String Inverters for North America

The CPS 50/60 kW three-phase string inverters are designed for ground mount, rooftop and carport applications. The units are high performance, advanced, and reliable inverters designed specifically for the North American environment and grid. High efficiency at 98.5% peak and 98.0% CEC, wide operating voltages, broad temperature ranges, and a NEMA Type 4X enclosure enable this inverter platform to operate at high performance across many applications.

The CPS 50/60 KTL products ship with either the Standard wire box or the Rapid Shutdown wire box, each fully integrated and separable with touch-safe fusing, monitoring, and AC and DC disconnect switches. The integrated PLC transmitter in the Rapid Shutdown wire box enables PVRSS-certified module-level rapid shutdown when used with APS RSD-5-PLC/RSD-5 products. The CPS FlexOM Gateway enables monitoring, controls and remote product upgrades.

Key Features

- NEC 2017/2020 PVRSS certified for rapid shutdown
- 55 & 66 kVA rating allows max rated active power @ ±0.91 PF
- Selectable max. AC apparent power of 50/55 kVA and 60/66 kVA
- NEC compliant and UL listed arc-fault circuit protection
- 15-90° mounting orientation for low profile roof installs
- Optional FlexOM Gateway enables remote firmware upgrades
- Integrated AC and DC disconnect switches
- 3 MPPTs with 5 inputs each for maximum flexibility
- NEMA Type 4X outdoor rated enclosure
- UL 1741-SA certified to CA Rule 21, including SA14 - SA18
- UL 1741-SB and IEEE 1547-2018 certified
- Separable wire-box design for fast service
- Standard 10-year warranty with extensions up to 20 years



CPS SCA50KTL-DO-R/US-480
CPS SCA60KTL-DO-R/US-480



50/60KTL Standard Wire Box

50/60KTL Rapid Shutdown Wire Box



CE

FC

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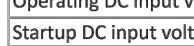


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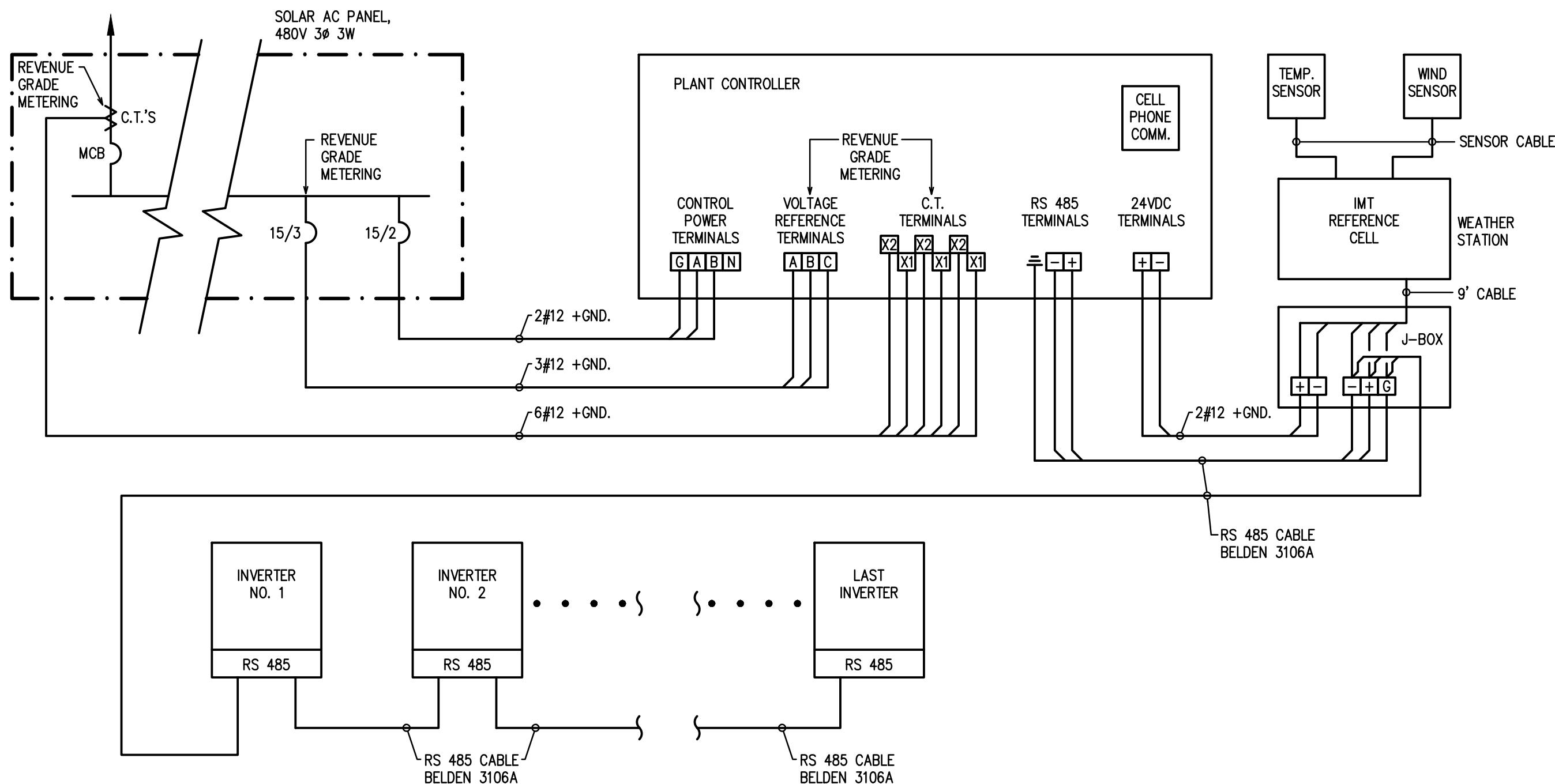
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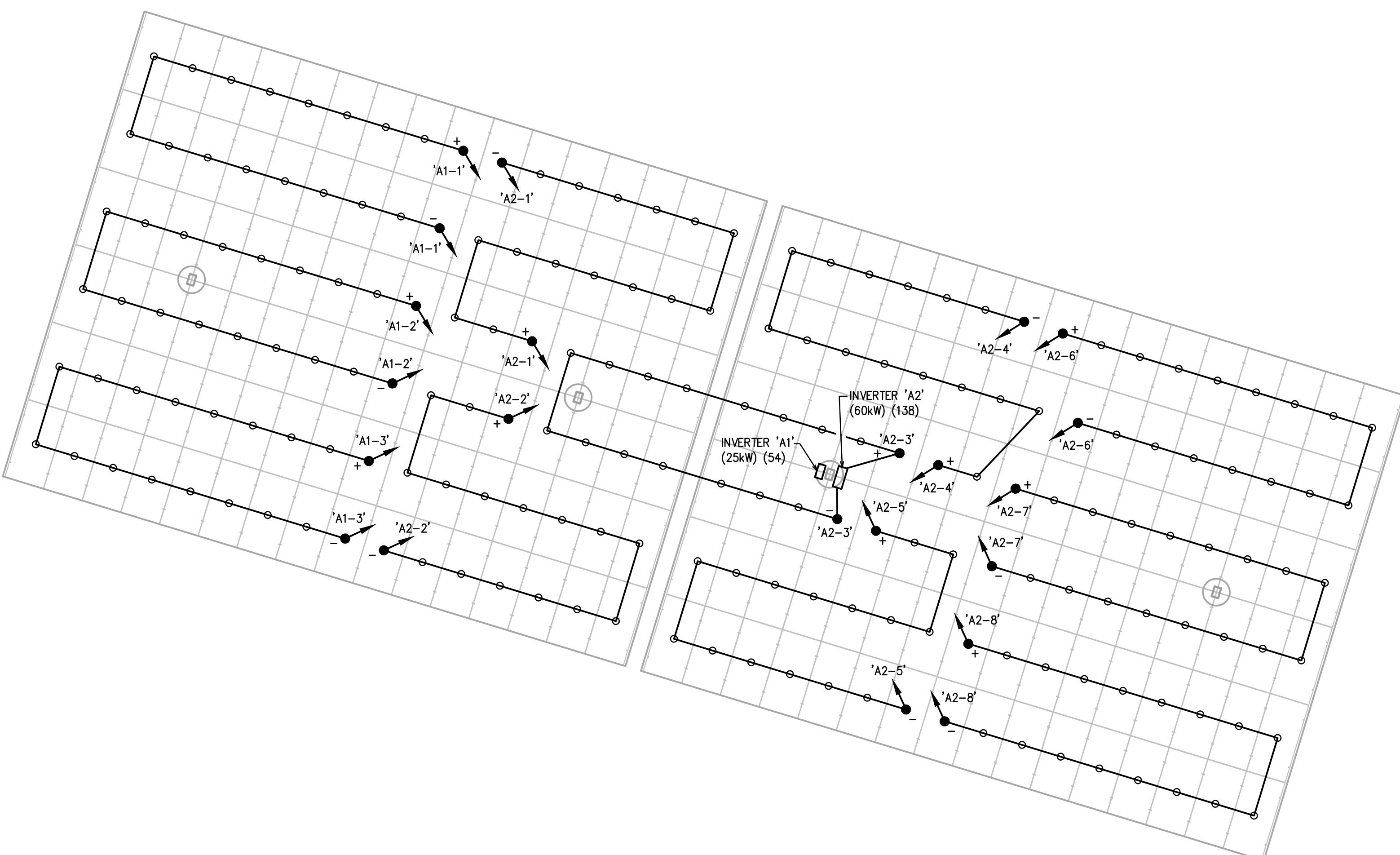
Chint Power



TYPICAL DATA ACQUISITION SYSTEM WIRING DIAGRAM

SCALE: NONE

1



PV SYSTEM ARRAY STRING CABLING PLAN

SCALE: 1/8"=1'-0"

2

E7.0

SYSTEM HOST



SYSTEM DEVELOPER

FOREFRONT
POWER
100 Montgomery Street #725
San Francisco, CA 94104
855-204-5083

ELECTRICAL CONSTRUCTORS AND ENGINEERS

E COLLINS
ELECTRICAL CONTRACTORS INC.
1902 Channel Drive
West Sacramento, CA 95691
916-567-1100

STRUCTURAL ENGINEERING

kpff

3131 CAMINO DEL RIO NORTH, SUITE 1080
SAN DIEGO, CA 92108
619.521.8500

ARCHITECT OF RECORD

M M P V d e s i g n

Mariana Moncada, Architect
718 West Arbor Drive
San Diego, CA 92103
619.632.2883

ARCHITECT / ENGINEER OF RECORD



NO. REVISION DATE

DATE: 02.20.25

PROJECT
**BAKERSFIELD CITY
SCHOOL DISTRICT**
Lincoln Junior High School

815 Eureka Street
Bakersfield, CA 93305

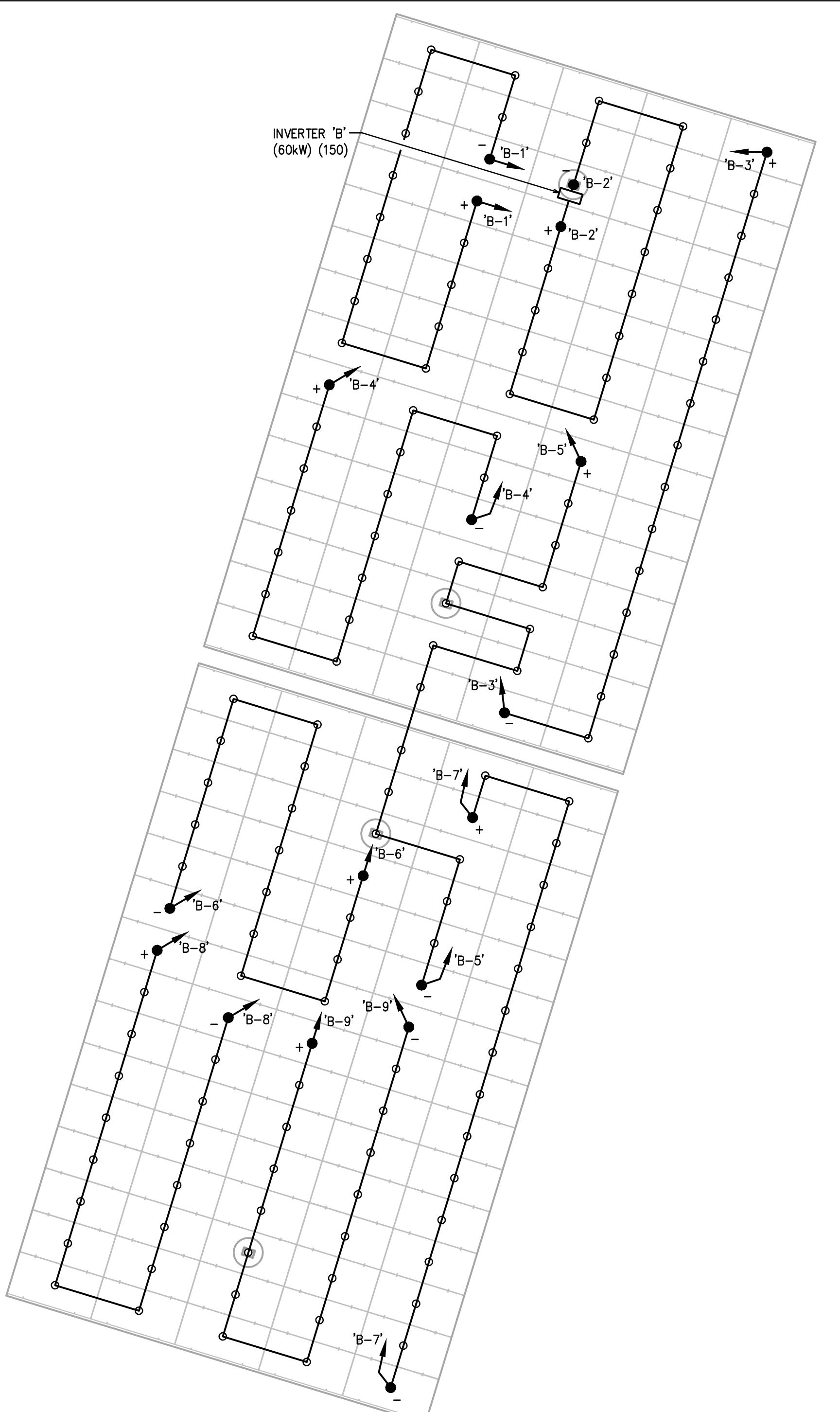
FPP PROJECT #
CA-19-0207

SHEET TITLE

**PV SYSTEM ARRAY
ELECTRICAL STRING
CABLING PLAN**

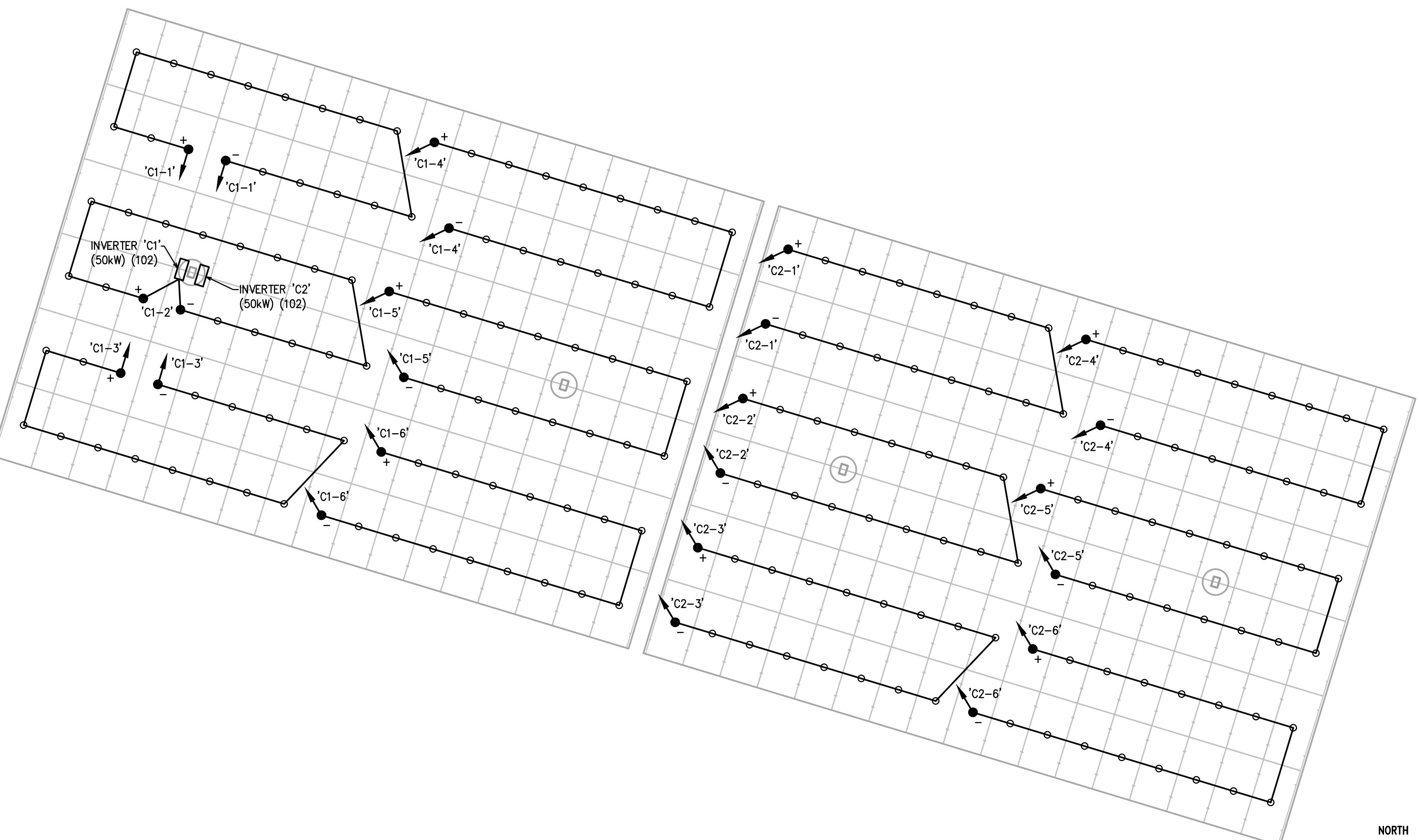
SHEET NO.:





PV SYSTEM ARRAY STRING CABLING PLAN

SCALE: 1/8"=1'-0"



NORTH

E7.1

SYSTEM HOST



SYSTEM DEVELOPER

FOREFRONT
POWER
100 Montgomery Street #725
San Francisco, CA 94104
855-204-5083

ELECTRICAL CONTRACTORS AND ENGINEERS

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ARCHITECT OF RECORD

M M P V d e s i g n

Mariana Moncada, Architect
718 West Arbor Drive
San Diego, CA 92103
619.632.2883

ARCHITECT / ENGINEER OF RECORD



NO. REVISION DATE

DATE: 02.20.25

PROJECT
BAKERSFIELD CITY
SCHOOL DISTRICT
Lincoln Junior High School

815 Eureka Street
Bakersfield, CA 93305

FPP PROJECT #
CA-19-0207

SHEET TITLE

PV SYSTEM ARRAY
ELECTRICAL STRING
CABLING PLAN

SHEET NO.:

2

PROJECT NOTES

- REFER TO DC PC #4 121993 FOR SHEET REFERENCES, GENERAL STRUCTURAL DESIGN, AND INFORMATION NOTED HEREIN.
- REFERENCES TO PC DWGS REFER TO DSA PC.
- REFERENCES TO SS DWGS REFER TO THIS SITE-SPECIFIC SET OF DRAWINGS.
- FOR GENERAL PLAN, SECTION, AND ELEVATION VIEWS REFER TO PC DRAWINGS.
- ALL DIMENSIONS ON PLAN VIEWS ARE PROJECTED FLAT; STEEL SHALL BE ORDERED FABRICATED AND INSTALLED BASED ON SLOPED DIMENSION AND NOT THE FLAT DIMENSIONS.
- FOUNDATION DESIGN BASED ON THE FOLLOWING SOILS REPORT:

COMPANY: GEO-ENGINEERING SOLUTIONS INC.
DATE: OCTOBER 17, 2023
JOB NUMBER: 144-1510

DRILLED PIER FOUNDATIONS ARE DESIGNED BASED ON THE GEOTECHNICAL DESIGN PARAMETERS GIVEN IN THE REPORT NAMED ABOVE:

IGNORED DEPTH FOR LATERAL BEARING AND SKIN FRICTION = 1'-0"
ALLOWABLE SKIN FRICTION = 285 PSF
ALLOWABLE UPLIFT SKIN FRICTION = 143 PSF
ALLOWABLE LATERAL BEARING PRESSURE = 600 PSF/FT

7. FOUNDATION DESIGN MAY UTILIZE SOIL CLASS Y PER SCHEDULE ON SHEET S101 (PC DWGS).

8. FOUNDATION CONCRETE SHALL BE PER CONCRETE GENERAL STRUCTURAL NOTES ON PC DRAWING SHEET S101.

9. FOR TYPICAL CONDUIT ROUTING, REFER TO SHEET S602 (PC DWGS) OR ELECTRICAL DRAWINGS.

10. FOR TYPICAL CONDUIT MOUNTING TO STRUCTURE, REFER TO SHEET S600 (PC DWGS) OR ELECTRICAL DRAWINGS.

11. ATTACH PV PANELS TO STRUCTURE PER SHEET S501 (PC DWGS).

12. MAINTAIN A MINIMUM CLEARANCE BETWEEN FINISHED GRADE AND BOTTOM OF STEEL BEAM ON LOW SIDE AS NOTED IN SS DWGS AND ARCHITECTURAL SHEETS.

13. REFER TO THE PROJECT SPECIFIC DSA-103 FORM FOR SPECIAL INSPECTION.

SEISMIC CRITERIA:

SITE CLASSIFICATION D
OCCUPANCY CATEGORY II
SEISMIC DESIGN CATEGORY D
IMPORTANCE FACTOR Ie = 1.0

SEISMIC ANALYSIS: ASCE 7-16 CHAPTER 12

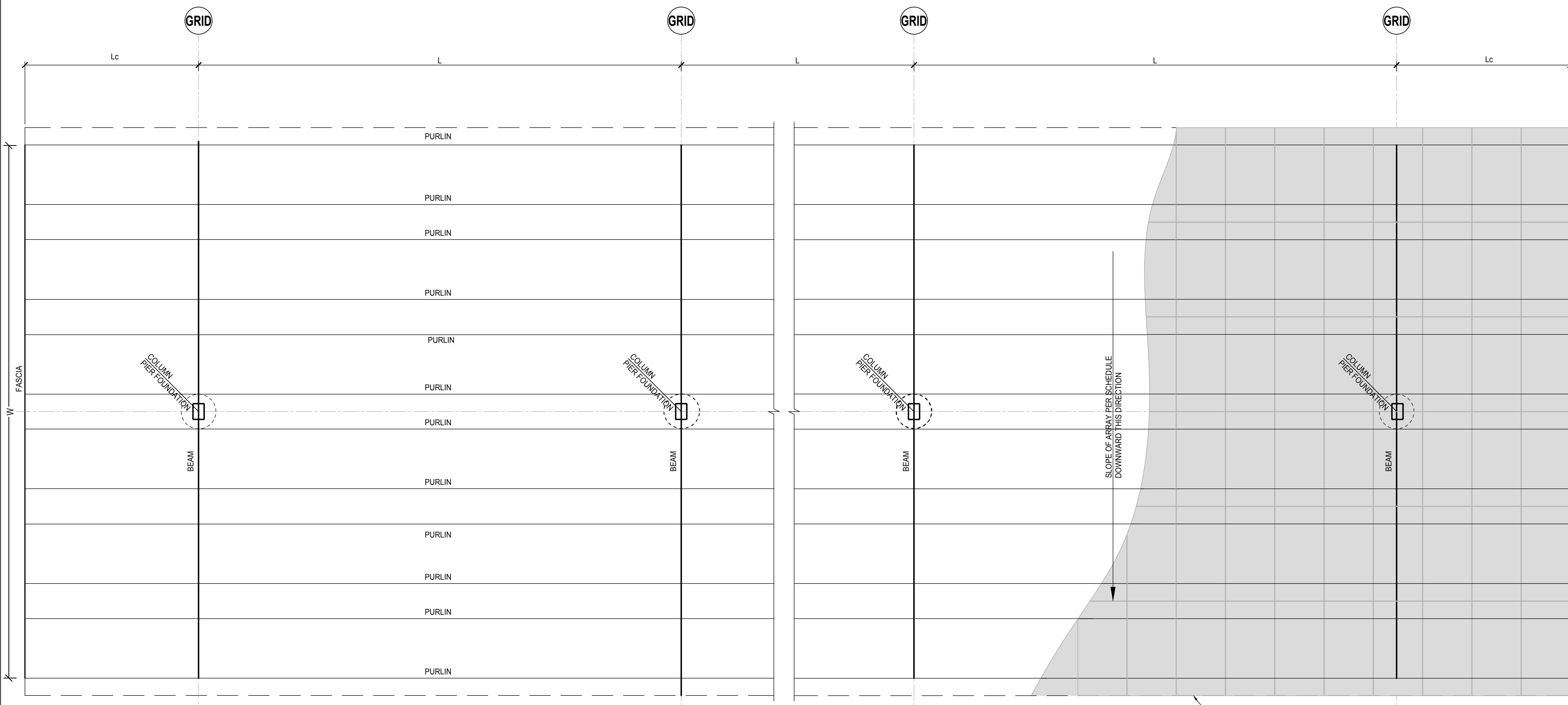
$S_0 = 0.931$ $S_{0s} = 0.745$
 $S_1 = 0.336$ $S_{01} = 0.381$
NON-BUILDING STRUCTURE TYPE SFRS = ORDINARY CANTILEVER COLUMN
RESPONSE MODIFICATION COEFFICIENT R = 1.25
SYSTEM OVERSTRENGTH FACTOR Q = 1.25
REDUNDANCY FACTOR p = 1.3
DEFLECTION AMPLIFICATION FACTOR Cd = 1.25
SEISMIC DESIGN COEFFICIENT Cs = 0.596
SEISMIC BASE SHEAR $V_b = 0.596W$

WIND ANALYSIS: DIRECTIONAL PROCEDURE PER ASCE 7, CHAPTER 27

BASIC WIND SPEED 94 MPH
IMPORTANCE FACTOR I_w = 1.0
WIND EXPOSURE C
OCCUPANCY CATEGORY II
GUST EFFECT FACTOR G = 0.85
ENCLOSURE CATEGORY OPEN
COMPONENTS & CLADDING (CC) DESIGN WIND PRESSURES (ASD): 20.00 (DOWN)/21.21 PSF (UP)

PANEL INFORMATION:

PANEL TYPE: HSPE-144HC-M10-525W
PANEL LENGTH: 89.72'
PANEL GAP: 1/2"

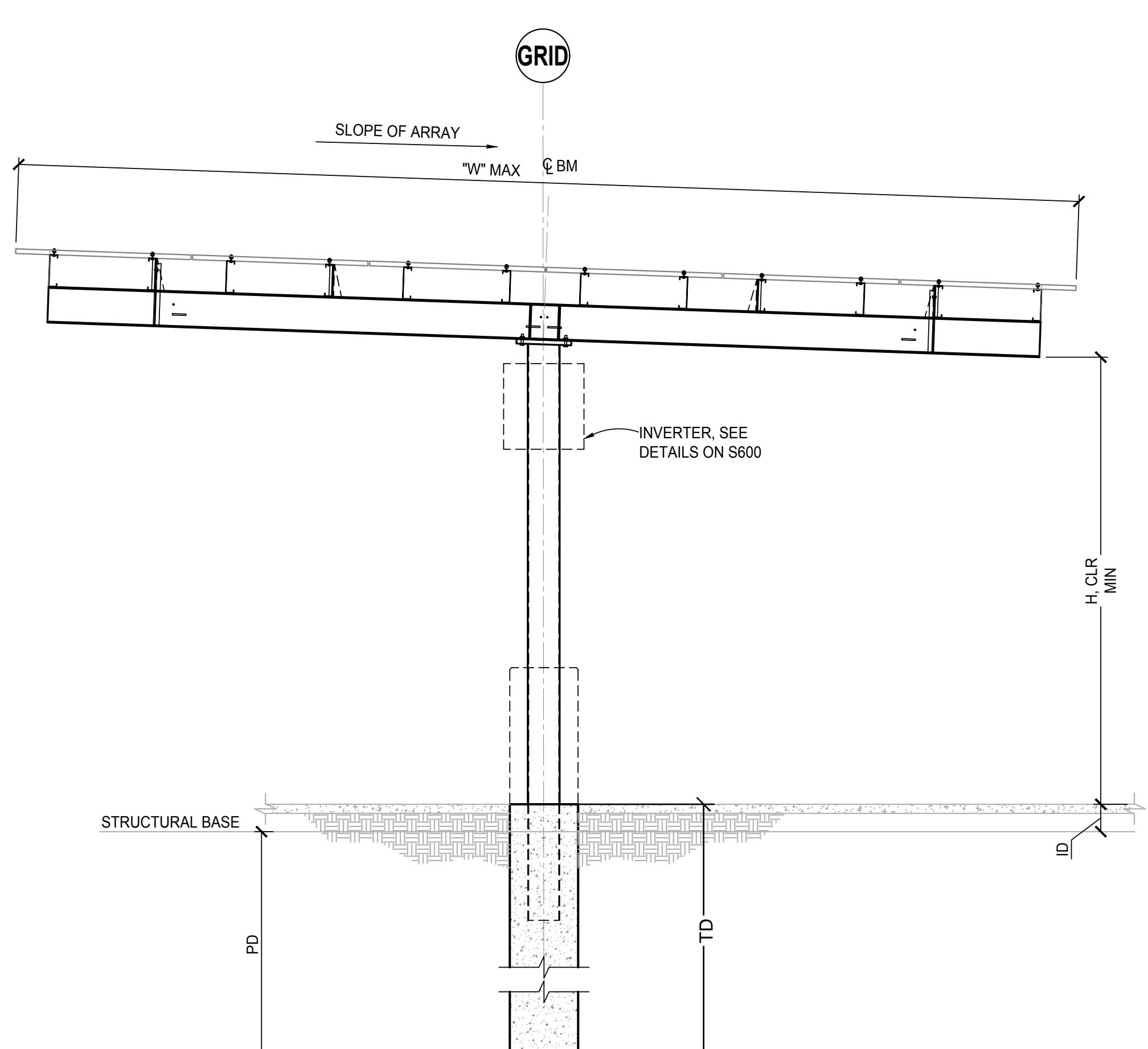


1 TYPICAL FRAMING PLAN

SCALE: 1/4=1'-0"

NOTE:
THE PLAN ABOVE IS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. FOR DETAILED PLAN SHEETS SEE THE PC DRAWINGS PER PROJECT NOTE 4.

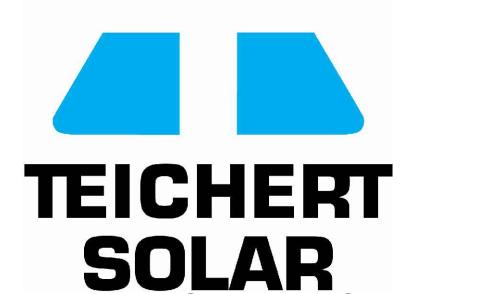
CANOPY SCHEDULE												
ARRAY	ARRAY SIZE	PC ID#	# OF COLUMN	BASE CONNECTION	TIILT	L, SPAN MAX	L, CANT MAX	W, MAX	H, CLR	MIN PIER DEPTH 'PD'	ID	TOTAL PIER DEPTH 'TD'
A1, A2	6x16	T6-CT-1.0	2	ABOVE GRADE	7°	37'-6"	11'-2 3/4"	45'-0 3/4"	13'-6"	12'-9"	1'-0"	13'-9"
C1, C2	6x17	T6-CT-1.0	2	ABOVE GRADE	7°	37'-6"	13'-1 1/4"	45'-0 3/4"	13'-6"	12'-9"	1'-0"	13'-9"
B1, B2	5x15	T5-AT-1.0	2	ABOVE GRADE	7°	37'-6"	9'-4 1/4"	37'-6 1/2"	11'-0"	10'-6"	1'-0"	11'-6"



2 TYPICAL SECTION - T CANOPIES

SCALE: 1/4=1'-0"

NOTE:
THESE SECTION ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. FOR DETAILED PLAN SHEETS SEE THE PC DRAWINGS PER PROJECT NOTE 4.



kpff
PROJECT #: 240203

PROJECT NAME: BAKERSFIELD CITY SCHOOL DISTRICT SOLAR
PROJECT ADDRESS: 815 EUREKA ST, BAKERSFIELD, CA 93305

STRUCTURAL
CALIFORNIA
NO. S4800

SHEET TITLE: SITE SPECIFIC NOTES, PLAN & SECTION

SHEET NO.: S000

S_{DS}=1.5 (MAX), WIND SPEED 98 MPH, EXPOSURE C, ROOF SNOW LOAD=0PSF (NOT ALLOWED)

TEICHERT

DSA-PC PV STRUCTURE SYSTEM

	SHEET	DESCRIPTION
<input checked="" type="checkbox"/>	S100	TITLE SHEET
<input checked="" type="checkbox"/>	S101	GENERAL STRUCTURAL NOTES
<input checked="" type="checkbox"/>	S102	GENERAL STRUCTURAL NOTES
<input checked="" type="checkbox"/>	S103	TESTING AND INSPECTION FORM
<input checked="" type="checkbox"/>	S200	6 PANEL T-STRUCTURE FRAMING PLAN AND SCHEDULE
<input checked="" type="checkbox"/>	S200A	5 PANEL T-STRUCTURE FRAMING PLAN
<input checked="" type="checkbox"/>	S201	6 AND 5 PANEL T-STRUCTURE SECTIONS
<input checked="" type="checkbox"/>	S202	4 PANEL L-STRUCTURE FRAMING PLAN AND SCHEDULE
<input checked="" type="checkbox"/>	S203	4 PANEL L-STRUCTURE SECTION
<input checked="" type="checkbox"/>	S204	3 PANEL L-STRUCTURE FRAMING PLAN AND SCHEDULE
<input checked="" type="checkbox"/>	S205	3 PANEL L-STRUCTURE SECTION
<input checked="" type="checkbox"/>	S300	PIER DETAILS-EMBEDDED COLUMN
<input checked="" type="checkbox"/>	S400	STEEL DETAILS
<input checked="" type="checkbox"/>	S501	COLD-FORMED DETAILS
<input checked="" type="checkbox"/>	S502	PURLIN BRACING DETAILS
<input checked="" type="checkbox"/>	S600	EQUIPMENT ANCHORAGE AND BARRICADE DETAILS
<input checked="" type="checkbox"/>	S601	MISC AND FENCE DETAILS
<input checked="" type="checkbox"/>	S602	CONDUITS ROUTING & BOLLARDS
TOTAL SHEET COUNT: 14		

NOTES: 1. PC APPLICANT TO DENOTE WHICH OPTIONAL SHEETS TO INCLUDE IN THE SITE-SPECIFIC PROJECT BY PLACING A MARK IN THE CHECK BOX NEXT TO THE APPROPRIATE SHEETS

SCOPE OF WORK

THE SCOPE OF WORK INCLUDES THE INSTALLATION OF NEW SOLAR PHOTOVOLTAIC CARPORTS, (INCLUDING STRUCTURAL STEEL FRAMING, CONCRETE FOUNDATIONS, AND COLD-FORMED PURLINS), AS WELL AS A FENCED INVERTER EQUIPMENT PAD (INCLUDING INVERTER PAD, FENCING, BOLLARDS, AND EQUIPMENT MOUNTING DETAILS).

PROJECT DIRECTORY

STRUCTURAL ENGINEER
KPFF CONSULTING ENGINEERS
3131 CAMINO DEL RIO NORTH, SUITE 1080
SAN DIEGO, CA 92108
PHONE: (619) 521-8500

VENDOR
TEICHERT SOLAR
3500 AMERICAN RIVER DR
SACRAMENTO, CA 95864
T 916 484 3011

PRINCIPAL: SHANE NOEL, SE
PROJECT MANAGER: JAMES MALLARD, PE

NOTES TO PLAN REVIEWER AND DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE:

- THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE IS RESPONSIBLE FOR SELECTING AND UTILIZING THE CORRECT MEMBER SHEETS FOR THE SITE-SPECIFIC CONDITION SUCH THAT THE SITE-SPECIFIC S_{DS} AND S₁ ARE LESS THAN THOSE NOTED IN THE DESIGN PARAMETER CHECKLIST.
- THE SEISMIC FORCE-RESISTING SYSTEM HAS BEEN DESIGNED TO TWO SEISMIC CRITERIA, BASED ON THE PARAMETERS IN THE DESIGN PARAMETER CHECKLIST. THIS PC MAY BE USED IN ANY LOCATION WHERE C_s, CALCULATED USING R = 1.25, DOES NOT EXCEED UPPPER LIMIT C_s = 1.20. THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE IS RESPONSIBLE FOR ENSURING THAT THE SITE-SPECIFIC C_s VALUE, CALCULATED APPROPRIATELY, IS LESS THAN OR EQUAL TO C_s = 1.20.
- THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE IS RESPONSIBLE FOR VERIFYING SITE-SPECIFIC WIND PARAMETERS AT ANY AND ALL SITES WHERE THIS PC IS USED. WIND PRESSURES BASED ON SITE-SPECIFIC PARAMETERS SHALL BE LESS THAN OR EQUAL TO WIND PRESSURES CALCULATED FROM THE PARAMETERS GIVEN IN THE DESIGN PARAMETER CHECKLIST.
- SITE SPECIFIC PLANS TO SHOW SITE SPECIFIC SOLAR PANEL LAYOUT.
- SITE SPECIFIC SOLAR PANEL LAYOUT SHALL SPECIFY THE MAXIMUM DIMENSION TO THE OUTSIDE EDGES OF SOLAR PANELS OR STRUCTURAL STEEL -WHICHEVER IS GREATER. THIS DIMENSION SHALL BE LESS THAN THE MAXIMUM ALLOWABLE DIMENSION OF THE STRUCTURE SHOWN ON THE PC PLANS (OR SCHEDULES).
- A SITE SPECIFIC GEOTECHNICAL REPORT SHALL BE SUBMITTED JUSTIFYING THE SOILS VALUES SELECTED. A SITE SPECIFIC GEOTECHNICAL IS REQUIRED TO USE THIS PC.
- SITE SPECIFIC DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE TO SELECT SOIL CLASS FOR SITE SPECIFIC NOTES.
- THE RESPONSIBILITY OF REVIEW AND APPROVAL OF ALL PROJECT-RELATED SUBMITTALS LIES WITH THE SITE-SPECIFIC STRUCTURAL ENGINEER OF RECORD (SEOR). KPFF WILL NOT BE REQUIRED TO SIGN DSA FORMS OR REVIEW SUBMITTALS FOR SITE-SPECIFIC PROJECTS UNLESS ACTING AS THE SITE-SPECIFIC SEOR.
- WHEN SITE-SPECIFIC PROJECT IS LOCATED IN A FLOOD ZONE OTHER THAN ZONE X, A LETTER STAMPED AND SIGNED BY THE GEOTECHNICAL ENGINEER OF RECORD IS REQUIRED TO VALIDATE THAT THE ALLOWABLE SOIL VALUES SPECIFIED IN THIS PC ARE STILL APPLICABLE. LOCATION OF ELECTRICAL ELEMENTS SHALL CONFORM TO ASCE 24, SECTION 7.2 PER DSA PR 14-01 SECTION 12.1.
- INTENDED USE AND OCCUPANCY, OCCUPANT LOAD FACTOR AND RISK CATEGORY SHALL BE NOTED ON THE SITE-SPECIFIC PLANS.
- WET STAMPED & SIGNED COPIES OF PC PLANS ARE NOT REQUIRED FOR SITE SPECIFIC PC USE.

BUILDING DATA

- CLASSIFICATION OF CONSTRUCTION IS TYPE IIB.
- OCCUPANCY CLASSIFICATION:
 - A: U: MAX. AREA = 3,000 FT²
 - B: A-2: MAX. AREA = 9,500 FT²
 - C: E: MAX. AREA = 14,500 FT²
 - D: S-2: MAX. AREA = UNLIMITED
- RISK CATEGORY IS II
- THE STRUCTURE IS A SINGLE-STORY OPEN CARPORT STRUCTURE.
- FOR GENERAL STRUCTURAL NOTES SEE SHEETS S100.

CODES AND STANDARDS

ALL WORK SHALL CONFORM TO:

- 2022 CALIFORNIA ADMINISTRATIVE CODE (CAC), PART 1, TITLE 24 C.C.R.
- 2022 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 C.C.R.
(2021 INTERNATIONAL BUILDING CODE AND 2022 CALIFORNIA AMENDMENTS)
- 2022 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 C.C.R.
(2020 NATIONAL ELECTRIC CODE AND 2022 CALIFORNIA AMENDMENTS)
- 2022 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 C.C.R.
(2021 UNIFORM MECHANICAL CODE AND 2022 CALIFORNIA AMENDMENTS)
- 2022 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 C.C.R.
(2021 UNIFORM PLUMBING CODE AND 2022 CALIFORNIA AMENDMENTS)
- 2022 CALIFORNIA ENERGY CODE, PART 6, TITLE 24 C.C.R.
- 2022 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 C.C.R.
(2021 INTERNATIONAL FIRE CODE AND 2022 CALIFORNIA AMENDMENTS)
- 2022 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 CCR
- 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), PART 11, TITLE 24 C.C.R.
- 2022 CALIFORNIA REFERENCED STANDARDS CODE, PART 12, TITLE 24 C.C.R.
- TITLE 19 CCR, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS
- ASCE 7-16 (SUPPLEMENT 3)
- FOR A LIST OF APPLICABLE STANDARDS INCLUDING CALIFORNIA AMENDMENT TO THE NFPA STANDARDS, REFER TO CBC CHAPTER 35 AND CFC CHAPTER 80

PV PANEL NOTES:

- SOLAR PANELS SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL1703 OR WITH BOTH UL 61730-1 AND UL 61730-2 PER CBC SECTION 1511.9 FOR THE PANEL ORIENTATIONS SHOWN ON PC PLANS.
- THE LOAD RATINGS FOR THE SOLAR PANELS SELECTED BY THE CONTRACTOR MUST MEET OR EXCEED THE ACTUAL DESIGN WIND PRESSURES SHOWN BELOW. ONLY 4 POINTS OF CONNECTION ON THE SOLAR PANEL ARE ALLOWED TO MEET THE LOAD RATING.
MINIMUM DOWNWARD WIND LOAD [ASD]: 24.3 PSF (BASED ON MINIMUM PANEL SIZE PER NOTE 4)
MINIMUM UPWARD WIND LOAD [ASD]: 26.3 PSF (BASED ON MINIMUM PANEL SIZE PER NOTE 4)
- THE OWNER'S SITE PROFESSIONAL SHALL PROVIDE PRODUCT DOCUMENTATION FROM THE SOLAR PANEL SUPPLIER, INCLUDING PANEL DIMENSIONS AND LOAD RATINGS, TO THE PC DESIGN PROFESSIONAL FOR REVIEW PRIOR TO SUBMITTAL TO DSA FOR PLAN REVIEW. DOCUMENTATION SHALL IDENTIFY PANEL LOAD RATING AS ALLOWABLE OR STRENGTH LEVEL AND SPECIFY WHETHER THE LOADS LISTED ARE DESIGN OR TEST VALUES FROM THE UL 1703 TESTS. UPON ACCEPTANCE, THE PC DESIGN PROFESSIONAL SHALL PROVIDE A STATEMENT TO OWNER'S SITE PROFESSIONAL THAT THE SOLAR PANELS ARE IN COMPLIANCE WITH THE APPROVED PC PLANS. THE OWNER'S SITE PROFESSIONAL SHALL SUBMIT THE STATEMENT AND PANEL DOCUMENTATION TO DSA WITH THE PLAN REVIEW PACKAGE.
- MINIMUM PV PANEL AREA: 78.13" x 39" (21.16 SQUARE FEET)
MAXIMUM PV PANEL SIZE: 98" LONG x 46" WIDE
ACTUAL PANEL SIZE: 89.96" x 44.6"
- ALL SOLAR PANELS MUST BE INSTALLED BY PROPERLY TRAINED AND QUALIFIED PERSONNEL. PROPERLY TRAINED PERSONNEL SHALL BE:
- FAMILAR WITH THE DIFFERENCE BETWEEN A DRILL, GUN AND AN IMPACT GUN
- FAMILAR WITH HOW TO MEASURE THE TORQUE ON THE INSTALLED BOLT
- TRAINED IN INSTALLATION OF STRUCTURAL STEEL BOLTING.
- SPECIAL INSPECTION AND TORQUE TESTING OF PRETENSIONED PANEL FASTENER INSTALLATION SHALL BE PERFORMED BY A QUALIFIED REPRESENTATIVE OF THE LABORATORY OF RECORD (LOR) IN ACCORDANCE WITH SECTION 2.1.8 OF IR PC-7 P² DESIGN CRITERIA FOR CANTILEVERED COLUMN CANOPY STRUCTURES.
- SOLAR PANEL ATTACHMENT BOLTS SHALL BE TESTED AND INSPECTED PER DSA IR 17-8.16 FOR HIGH STRENGTH BOLTS OR AS INSTRUCTED IN CURRENT DSA SPECIFICATIONS.
- THE INSTALLATION TORQUE SHALL BE INSPECTED TO BE IN CONFORMANCE WITH S₅₀₁. THE FREQUENCY OF INSPECTION SHALL BE CONTINUOUS.
- SOLAR PANELS MUST BE SECURED TO THE STRUCTURE WITH A MINIMUM OF 4 DIRECT BOLTS. ALL 4 BOLTS MUST BE PROPERLY INSTALLED, TORQUED, AND INSPECTED FOR ALL PANELS INSTALLED ON A STRUCTURE BY THE END OF THE WORK DAY. NO PANEL MAY BE LEFT ON THE STRUCTURE WITHOUT ALL 4 BOLTS INSTALLED OR PROPERLY TORQUED.
- CONTRACTOR RESPONSIBLE FOR SOLAR PANEL INSTALLATION AND ATTACHMENT SHALL PROVIDE A SUBMITTAL TO THE SITE-SPECIFIC STRUCTURAL ENGINEER OF RECORD FOR THEIR REVIEW CONTAINING: THE PANEL INSTALLATION PROCEDURES, METHOD TO ENSURE ALL PANELS HAVE ALL 4 BOLTS INSTALLED AND PROPERLY TORQUED BEFORE THE END OF EVERY WORK DAY, ALL TOOLS USED TO SECURE THE SOLAR PANEL (INCLUDING BUT NOT LIMITED TO: POWER TOOLS RPM, TOOLS MAX TORQUE ABILITY, METHOD OF ENSURING TORQUE VALUES ARE NOT EXCEEDED, ETC.), AND ALL BOLTS AND HARDWARE USED TO SECURE THE PANEL TO THE STRUCTURE.

DESIGN PARAMETERS CHECKLIST

CODE: 2022 CALIFORNIA BUILDING CODE, REFERRED TO AS "THE CODE"
GOVERNING JURISDICTION: DIVISION OF THE STATE ARCHITECT (DSA)
CONSTRUCTION TYPE: IIB
OCCUPANCY CLASSIFICATION: A-2 E S-2 U
OCCUPANT LOAD FACTOR (CBC TABLE 1004.5):
LOAD FACTOR: 20
USE AND OCCUPANCY NOTE:

USE AN OCCUPANCY CLASSIFICATION PER CBC CHAPTER 3, OCCUPANT LOAD FACTOR (OLF) PER CBC TABLE 1004.1-2 AND DETERMINATION OF RISK CATEGORY PER CBC TABLE 1604A.5, TO BE COMPLETED BY DESIGN PROFESSIONAL AT TIME OF OTC OR PROJECT SUBMITTAL.

REGARDLESS OF SIZE, IF A STRUCTURE THAT WOULD OTHERWISE QUALIFY AS RISK CATEGORY II PROVIDES SHELTER FOR EMERGENCY VEHICLES OR EQUIPMENT; OR PROVIDES REQUIRED ACCESS TO, REQUIRED EGGS FROM OR SHARES LIFE SAFETY COMPONENTS WITH A RISK CATEGORY III OR IV BUILDING, THE MORE RESTRICTIVE RISK CATEGORY MUST BE APPLIED. SEE CBC 1604.5.1

RISK CATEGORY: II

ROOF DEAD LOADS:
PV PANEL + MISC: 2.75 PSF MAX.

ROOF LIVE LOADS:
DISTRIBUTED: 12 PSF NON-CONCURRENT w/ PV PANEL DEAD LOAD
POINT LOAD: 300 LBS CONCURRENT w/ PV PANEL DEAD LOAD

NOTE: NO FUTURE ROOF DECKING OR SHEATHING MAY BE INSTALLED ON THE OPEN GRID FRAMING

WIND ANALYSIS: DIRECTIONAL PROCEDURE PER ASCE 7-16, CHAPTER 27

BASIC WIND SPEED: 98 MPH

WIND EXPOSURE: C, OVER-THE-COUNTER SUBMITTAL

GUST EFFECT FACTOR: R_g = 0.87

INTERNAL PRESSURE COEFFICIENT: C_g = ±0

TOPOGRAPHIC FACTOR: K_{z1} = 1.0

DIRECTIONALITY FACTOR: K_d = 0.85

WIND FLOW: CLEAR AND OBSTRUCTED

SEISMIC CRITERIA: SITE CLASS: A B C D E*

* LIQUEFACTION SOIL AND/OR SITE CLASS F ARE NOT ALLOWED

SEISMIC DESIGN CATEGORY: A B C D E

SEISMIC ANALYSIS: ASCE 7-16 CHAPTER 12 "BUILDING STRUCTURES"

STRUCTURE TYPE: STEEL ORDINARY CANTILEVER COLUMN SYSTEM (OCSS)

RESPONSE MODIFICATION COEFFICIENT: R = 1.25

SYSTEM OVERSTRENGTH FACTOR: D₀ = 1.25

DEFLECTION AMPLIFICATION FACTOR: C₀ = 1.25

IMPORTANCE FACTOR: I = 1.00

REDUNDANCY FACTOR: R = 1.5

SEISMIC SEPARATION OF ADJACENT CANOPIES = 9.0" MIN

LOCATION OF BASE = SEE "GEOTECH RECOMMENDATIONS" SECTION

SEISMIC BASE SHEAR COEFFICIENT

C_s = S₉₅/(R/I) = 0.596 ≤ 1.2 (STRENGTH w/o ρ)

WHERE S₉₅ IS DETERMINED PER BELOW:

S₉₅ = 0.931 g

S₉₅ = 3/8 F₀S₉₅ = 0.745 g ≤ 1.0g 1.5g [EQUATIONS 11.4-1 & 11.4-3]

F₀ = 1.2 = SHORT PERIOD SITE COEFFICIENT PER TABLE BELOW

SHORT-PERIOD SITE COEFFICIENT, F₀

MAPPED RISK-TARGETED MAXIMUM CONSIDERED EARTHQUAKE (MCE₀) SPECTRAL RESPONSE ACCELERATION PARAMETER AT SHORT PERIOD

SITE CLASS	S _{0.25}	S _{0.5}	S _{0.75}	S _{1.0}	S _{1.25}	S _{1.5}
A	0.8	0.8	0.8	0.8	0.8	0.8
B	0.9	0.9	0.9	0.9	0.9	0.9
C	1.3	1.3	1.2	1.2	1.2	1.2
D	1.6	1.4	1.2	1.1	1.0	1.0
E	2.4	1.7	1.3	1.2	1.2	1.2

FOOTNOTES:

- VALUES DETERMINED PER ASCE 7-16 TABLE 11.4-1, SECTION 11.4.4, AND SECTION 11.4.8
- LINEAR INTERPOLATION MAY BE USED FOR INTERMEDIATE VALUES OF S₉₅

GEOHAZARD NOTE:

GEHAZARD REPORT IS NOT REQUIRED, GIVEN THAT THE STRUCTURES ARE CANTILEVERED COLUMN OPEN STRUCTURES CONSTRUCTED OF METAL, DO NOT EXCEED 4000 SF IN PLAN AREA AND ARE NOT LOCATED WITHIN A STATE OR LOCAL GEOHAZARD ZONE. STRUCTURES MAY BE SPLIT INTO MULTIPLE SEISMICALLY SEPARATED STRUCTURES TO STAY BELOW THE 4000 SF TRIGGER

CRITERIA ABOVE IS NOT MET, GEHAZARD REPORT IS REQUIRED.

SNOW OR ICE LOADS:

GROUND

GENERAL STRUCTURAL NOTES (G.S.N.)

GENERAL

- THE STEEL STRUCTURES IN THIS PC ARE PROPRIETARY TO TEICHERT ENERGY & UTILITIES GROUP, INC. DBA TEICHERT SOLAR. THE STEEL PORTION OF ANY CONSTRUCTION PROJECT UTILIZING THIS PC DOCUMENT MAY NOT GO OUT TO BID. FOR CONSTRUCTION COST INFORMATION, CONTACT ANDREAS KARLSSON (562) 283-2970, AKARLSSON@TEICHERT.COM.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO STARTING CONSTRUCTION. DO NOT SCALE THE DRAWINGS. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES, IN CASE OF CONFLICT, MORE COSTLY REQUIREMENTS GOVERN FOR BIDDING. SUBMIT CLARIFICATION REQUEST PRIOR TO PROCEEDING WITH WORK.
- ALL DRAWINGS ARE CONSIDERED TO BE A PART OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL DRAWINGS AND SPECIFICATIONS PRIOR TO THE START OF CONSTRUCTION. STRUCTURAL DRAWINGS INDICATE INFORMATION SUFFICIENT TO CONVEY DESIGN INTENT. IF ERRORS, INCONSISTENCIES OR OMISSIONS ARE DISCOVERED, THE ARCHITECT AND STRUCTURAL ENGINEER SHALL BE NOTIFIED PRIOR TO PROCEEDING WITH WORK. DEVIATION FROM THE APPROVED SET OF CONTRACT DOCUMENTS SHALL ONLY BE MADE AFTER WRITTEN APPROVAL BY THE ENGINEER OF RECORD.
- NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE GIVEN, CONSTRUCTION SHALL BE AS SHOWN FOR SIMILAR WORK, UNLESS NOTED OTHERWISE. DETAILS IN STRUCTURAL DRAWINGS ARE TYPICAL AS INDICATED BY CUTS, REFERENCES OR TITLES.
- ALL WORK SHALL CONFORM TO THE MINIMUM STANDARDS OF THE FOLLOWING CODES: LOCAL BUILDING CODE, AND ANY OTHER REGULATING AGENCIES WHICH HAVE AUTHORITY OVER ANY PORTION OF THE WORK, INCLUDING THE STATE OF CALIFORNIA DIVISION OF INDUSTRIAL SAFETY, AND THOSE CODES AND STANDARDS LISTED IN THESE NOTES AND SPECIFICATIONS.
- THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING, FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL ENGINEER SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.
- ALL REFERRED STANDARDS (i.e. ACI, AISC, ASTM, ETC.) SHOWN IN THESE DOCUMENTS SHALL BE PER THE LATEST ADOPTED EDITION AS LISTED IN CHAPTER 35 OF THE CODE.
- CONTRACTOR SHALL INVESTIGATE SITE DURING CLEARING AND EARTHWORK OPERATIONS FOR FILLED EXCAVATIONS OR BURIED STRUCTURES, SUCH AS CESSPOOLS, CISTERNS, FOUNDATIONS, ETC. IF ANY SUCH STRUCTURES ARE FOUND, STRUCTURAL ENGINEER SHALL BE NOTIFIED IMMEDIATELY.
- CONTRACTOR TO PROVIDE A LIST OF ALL PROPOSED SUBSTITUTIONS, WITH APPLICABLE MANUFACTURER'S ICC/APMO REPORTS, TO ARCHITECT, ENGINEER OF RECORD AND GOVERNING JURISDICTION FOR REVIEW AND APPROVAL BEFORE FABRICATION.

SHOP DRAWINGS / SUBMITTALS

- THE FOLLOWING IS A PARTIAL LIST OF REQUIRED STRUCTURAL SHOP DRAWINGS AND SUBMITTALS. UNLESS SPECIFICALLY INDICATED IN THE TABLE BELOW, ALL SUBMITTALS LISTED REQUIRE REVIEW BY THE ENGINEER OF RECORD.

SUBMITTAL ITEM	REQUIRED FOR SEOR REVIEW
CONCRETE	
CONCRETE MIX DESIGNS, INCLUDING STRENGTH AND SHRINKAGE TEST RESULTS	X
REINFORCING STEEL (EXCEPT WHERE NOTED BELOW)	X
REBAR AT SLAB-ON-GRADE AND SPREAD FOOTINGS	-
FORMWORK	-
SHORING AND BRACING	-
STEEL	
STRUCTURAL STEEL MILL REPORTS	-
STRUCTURAL STEEL	X
WELDING PROCEDURE SPECIFICATIONS	X
MISCELLANEOUS STEEL SHOWN ON STRUCTURAL DRAWINGS	-
COLD-FORMED STEEL	-
COLD-FORMED STEEL FRAMING	X

- GENERAL:
 - THE STRUCTURAL SHOP DRAWING REVIEW IS INTENDED TO HELP THE ENGINEER VERIFY THE DESIGN CONCEPT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CHECK THEIR OWN SHOP DRAWINGS PRIOR TO SUBMITTING TO THE ENGINEER OF RECORD.
 - THE STRUCTURAL SHOP DRAWINGS WILL BE RETURNED FOR RESUBMITTAL IF A CURSORY REVIEW SHOWS MAJOR ERRORS WHICH SHOULD HAVE BEEN FOUND BY THE CONTRACTOR'S CHECKING.
 - ANY SUBMITTAL OF A DETAIL SHEET WITH ADDED INFORMATION NOT SHOWN ON PLANS SHALL BE ACCCOMPANIED BY LOCATION PLAN IDENTIFYING THE MEMBERS INVOLVED AND CLOUDING AROUND ADDED INFORMATION.
 - THE SHOP DRAWINGS SHALL REFERENCE THE DATE OF THE CONSTRUCTION DOCUMENTS THAT THE SHOP DRAWINGS ARE BASED ON AND THE DESIGN CRITERIA USED TO PRODUCE THE SUBMITTAL.
 - CONTRACTOR/SUBCONTRACTOR TO PROVIDE (1) ELECTRONIC COPY OF SHOP DRAWINGS FOR REVIEW BY THE ARCHITECT AND THE ENGINEER OF RECORD.

MEP COORDINATION

- THE STRUCTURAL PLANS INDICATE ONLY THE APPROXIMATE LOCATION OF MECHANICAL, ELECTRICAL AND OTHER EQUIPMENT, AS WELL AS THE RELATED FRAMING NECESSARY TO SUPPORT SUCH EQUIPMENT. THE FINAL POSITIONING OF THESE ITEMS IS DEPENDENT UPON THE EQUIPMENT PROVIDED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WORK BETWEEN SUBCONTRACTORS AND MANUFACTURERS.

STATEMENT OF STRUCTURAL INSPECTION AND TESTING

- THE FOLLOWING ELEMENTS OF CONSTRUCTION SHALL REQUIRE SPECIAL INSPECTION PER CHAPTER 17 OF THE CODE, U.N.O.
 - SEE DSA FORM 103 FOR REQUIRED SPECIAL INSPECTIONS (SEE S102).
 - THE SPECIAL INSPECTIONS IDENTIFIED ON PLANS ARE, IN ADDITION TO, AND NOT A SUBSTITUTE FOR, THOSE INSPECTIONS REQUIRED TO BE PERFORMED BY THE GOVERNING JURISDICTION. SPECIALLY INSPECTED WORK WHICH IS INSTALLED OR COVERED WITHOUT THE APPROVAL OF AN INSPECTOR FROM THE GOVERNING JURISDICTION IS SUBJECT TO REMOVAL OR EXPOSURE.
 - FOR CONTINUOUS INSPECTION, WHEN WORK IN MORE THAN ONE CATEGORY OF WORK REQUIRING SPECIAL INSPECTION IS TO BE PERFORMED SIMULTANEOUSLY, OR THE GEOGRAPHIC LOCATION OF THE WORK IS SUCH THAT IT CANNOT BE CONTINUOUSLY OBSERVED IN ACCORDANCE WITH THE PROVISIONS OF THE CODE, IT IS THE AGENT'S RESPONSIBILITY TO EMPLOY A SUFFICIENT NUMBER OF INSPECTORS TO ASSURE THAT ALL WORK IS INSPECTED IN ACCORDANCE WITH THOSE PROVISIONS.
 - THE SPECIAL INSPECTORS MUST BE CERTIFIED BY THE GOVERNING JURISDICTION IN THE CATEGORY OF WORK REQUIRED TO HAVE SPECIAL INSPECTION.
 - EXAMINATIONS:
 - SOLAR INSPECTIONS BY THE SOILS ENGINEER OF RECORD OR PROJECT INSPECTOR
 2. WHEN WAIVED BY THE GOVERNING JURISDICTION

- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INFORM THE SPECIAL INSPECTOR OR INSPECTION AGENCY AT LEAST ONE WORKING DAY PRIOR TO PERFORMING ANY WORK THAT REQUIRES SPECIAL INSPECTION. ALL WORK PERFORMED WITHOUT REQUIRED SPECIAL INSPECTION IS SUBJECT TO REMOVAL.
- PROVIDE SPECIAL INSPECTION FOR CONNECTIONS BOLT-S WITH A325 BOLTS. INSPECTIONS SHALL BE DONE PER APPROVED NATIONALLY RECOGNIZED STANDARDS AND THE REQUIREMENTS OF THE CODE AND THE GOVERNING JURISDICTION. WHILE THE WORK IS IN PROGRESS, THE SPECIAL INSPECTOR SHALL DETERMINE THE BOLTS, NUTS, WASHERS AND PAINT; BOLTED PARTS; AND INSTALLATION AND TIGHTENING MEET THE STANDARDS REQUIREMENTS.
- THE SPECIAL INSPECTOR FOR HIGH STRENGTH BOLTED CONNECTIONS SHALL:
 1. OBSERVE THE CALIBRATION PROCEDURES WHEN SUCH PROCEDURES ARE REQUIRED BY THE PLANS OR SPECIFICATIONS.
 2. MONITOR THE INSTALLATION OF BOLTS TO DETERMINE THAT ALL PLIES OF CONNECTED MATERIALS HAVE BEEN DRAWN TOGETHER.
 3. MONITOR THAT THE SELECTED PROCEDURE IS PROPERLY USED TO TIGHTEN ALL BOLTS.
- THE SPECIAL INSPECTOR FOR ADHESIVE ANCHORS SHALL VERIFY THE DRILLING OF ANY HOLES, THE CLEANLINESS OF THE HOLE, THE MOISTURE IN THE HOLE, MIXING THE ADHESIVE, THE BRAND OF ADHESIVE, AND THE PROPER MATERIAL FOR ASSEMBLY.
- THE SPECIAL INSPECTOR SHALL PROVIDE WEEKLY REPORTS AND A FINAL REPORT TO THE STRUCTURAL ENGINEER.
- THE SPECIAL INSPECTOR SHALL ENSURE THAT ALL DEFICIENCIES NOTED BY THE STRUCTURAL ENGINEER IN STRUCTURAL OBSERVATION REPORTS ARE CORRECTED. SUCH COMPLIANCE SHALL BE REFERENCED IN SPECIAL INSPECTOR REPORT.
- THE CONSTRUCTION MATERIALS TESTING LABORATORY MUST BE APPROVED BY THE GOVERNING JURISDICTION, FOR TESTING OF MATERIALS, SYSTEMS, COMPONENTS AND, EQUIPMENTS.
- PERIODIC INSPECTION SHALL OCCUR FREQUENTLY ENOUGH TO INSPECT ALL OF THE INSTALLED ITEMS AND TO PERIODICALLY WITNESS THE INSTALLATION OF THE ITEMS.
- BATCH PLANT INSPECTION NOT REQUIRED PER CBC1705A.3.2. SUBJECT TO:
 - A LICENSED WEIGHMASTER SHALL POSITIVELY IDENTIFY QUANTITY OF MATERIALS AND CERTIFY EACH LOAD BY A BATCH TICKET.
 - BATCH TICKETS, INCLUDING MATERIAL QUANTITIES AND WEIGHTS SHALL ACCOMPANY THE LOAD, SHALL BE TRANSMITTED TO THE INSPECTOR OF RECORD BY THE TRUCK DRIVER WITH LOAD IDENTIFIED THEREON. THE LOAD SHALL NOT BE PLACED WITHOUT A BATCH TICKET IDENTIFYING THE INSPECTOR OF RECORD SHALL KEEP A DAILY RECORD OF PLACEMENTS, IDENTIFYING EACH TRUCK, ITS LOAD, AND TIME OF RECEIPT AT THE JOBSITE, AND APPROXIMATE LOCATION OF DEPOSIT IN THE STRUCTURE AND SHALL MAINTAIN A COPY OF THE DAILY RECORD AS REQUIRED BY THE ENFORCEMENT AGENCY.

FOUNDATION:

- FOUNDATION DESIGN BASED ON SITE SPECIFIC SOILS REPORT. SEE TABLE BELOW FOR SOIL CLASS AND CAPACITIES SCHEDULE.

(FINAL) SOIL CLASS AND CAPACITIES SCHEDULE (NO FURTHER INCREASES ARE ALLOWED)			
ALLOWABLE LATERAL BEARING (PSF/FT)	MAX LATERAL BEARING (PSF)	ALLOWABLE SKIN FRICTION - DOWN (PSF)	ALLOWABLE SKIN FRICTION - UPLIFT (PSF)
SOIL CLASS V	300	4500	250
SOIL CLASS W	400	6000	250
SOIL CLASS X	500	7500	285
XISOL CLASS Y	600	9000	285

THE STRUCTURE HAS BEEN DESIGNED TO ACCOUNT FOR $\frac{1}{2}$ " MOVEMENT AT THE BASE SO THE LATERAL BEARING PRESSURE HAS ALREADY BEEN DOUBLED PER CBC 1806A.3.4

THE PC DESIGN IS BASED ON THE BASIC ASD LOAD COMBINATIONS PER CBC 1605A.3.1. THE ALLOWABLE LATERAL BEARING PRESSURE IS NOT PERMITTED TO BE INCREASED BY ONE-THIRD FOR SHORT-TERM LOADS PER CBC 1806A.1.

PIER DEPTH REQUIRED FOR DOWNWARD AND UPLIFT LOADS SHALL BE BASED ON SKIN FRICTION ONLY. ADDITIONAL RESISTANCE DUE TO END BEARING IS NOT ALLOWED.

- SLABS ON GRADE SHALL BEAR ON APPROVED SUGGRADE PER THE RECOMMENDATIONS OF THE SOILS REPORT.
- CONTRACTORS TO PROVIDE FOR DE-WATERING OF EXCAVATIONS FROM EITHER SURFACE WATER, GROUND WATER, OR SEEPAGE, IF REQUIRED TO AVOID SEEP-OUT WATER FLOW, PER THE APPROVAL OF THE SOILS ENGINEER. ALLOW WATER LEVEL TO ATTAIN ITS NORMAL LEVEL AND PLACE CONCRETE BY THE TREMIE METHOD OR OTHER APPROVED METHOD.
- FOUNDATIONS SHALL BE PLACED AND ESTIMATED ACCORDING TO DEPTHS SHOWN ON DRAWINGS. SHOULD SOIL ENCOUNTERED AT THESE DEPTHS NOT BE APPROVED BY THE INSPECTOR OR SOILS ENGINEER, FOUNDATION ELEVATIONS WILL BE ALTERED.
- FOOTING BACKFILL AND UTILITY TRENCH BACKFILL WITHIN BUILDING AREA SHALL BE MECHANICALLY COMPACTED IN LAYERS IN ACCORDANCE WITH THE SOILS REPORT OR BACKFILLED WITH 2-SACK SAND CEMENT SLURRY AND APPROVED BY THE SPECIAL INSPECTOR. SOILS REPORT SHALL TAKE PRECEDENCE WHEN RECOMMENDATION GIVEN.
- CONTRACTOR SHALL INVESTIGATE SITE DURING CLEARING AND EARTHWORK OPERATIONS FOR FILLED EXCAVATIONS OR BURIED STRUCTURES, SUCH AS CESSPOOLS, CISTERNS, FOUNDATIONS, ETC. IF ANY SUCH STRUCTURES ARE FOUND, STRUCTURAL ENGINEER SHALL BE NOTIFIED IMMEDIATELY.
- REMOVE CONTAMINATED SOILS (WHERE OCCUR) PER THE SOILS REPORT.
- SOIL REMOVAL AND RECOMPACT SHALL BE PER THE SOILS REPORT AND APPROVED CONTRACT DOCUMENTS.
- EACH DRILLED PIER SHALL BE INSPECTED BY THE SOILS ENGINEER PRIOR TO PLACING CONCRETE AND REINFORCING STEEL.
- PRECAUTIONS SHOULD BE TAKEN DURING THE INSTALLATION OF PIERS TO MINIMIZE THE POSSIBILITY OF CAVING. CLOSELY SPACED PIERS SHOULD BE DRILLED AND FILLED ALTERNATELY, ALLOWING THE CONCRETE TO SET AT LEAST EIGHT HOURS BEFORE DRILLING AN ADJACENT HOLE. PIER EXCAVATIONS SHOULD BE FILLED WITH CONCRETE AS SOON AFTER DRILLING AND INSPECTION AS POSSIBLE.
- PLACE REINFORCING STEEL IN ONE CONTINUOUS UNIT AND ACCURATELY HOLD SECURELY IN FINAL POSITION USING CHARS OR SPACERS DURING CONCRETE PLACEMENT.
- CONSTRUCTION SHALL COMPLY WITH THE REQUIREMENTS OF ACI 336.3R, LATEST EDITION.
- OVEREXCAVATING TO ALLOW FOR LOOSE MATERIAL AT THE BOTTOM IS ACCEPTABLE AS LONG AS THE DESIGN DEPTH IS MET.

CONCRETE

- ALL CONCRETE CONSTRUCTION SHALL CONFORM WITH THE CODE AND WITH THE PROVISIONS OF ACI 360 AND ACI 303.
- CONCRETE MIXES SHALL BE DESIGNED BY A QUALIFIED TESTING LABORATORY AND APPROVED BY THE GOVERNING JURISDICTION.
- MIX DESIGN METHODS (TEST HISTORY OR TRIAL BATCH METHOD) PER THE CODE SHALL BE USED TO PROPORTION CONCRETE. SUBMIT MIX DESIGN METHOD DATA.

SCHEDULE OF STRUCTURAL CONCRETE PERFORMANCE REQUIREMENTS:

MEMBER	EXPOSURE CLASS:		ALL OTHER CLASSES: EXCLUDING: F3, S3, AND C2	
	F'c 28 DAY (PSI)	MAX W/C	F'c 28 DAY (PSI)	MAX W/C
FOUNDATIONS	5000	0.50	5000	0.45
EQUIPMENT PADS, AND OTHER MISC. CONCRETE	5000	0.60	5000	0.45

4. GEOTECHNICAL ENGINEER SHALL SELECT THE EXPOSURE CLASS FOR EACH SITE.

5. PORTLAND CEMENT SHALL CONFORM TO ASTM C-150, TYPE I OR II FOR EXPOSURE CLASS FO, SO, PO, CO. (TYPE II FOR S1)

6. PORTLAND CEMENT SHALL CONFORM TO ASTM C-150, TYPE V FOR EXPOSURE CLASS S2 AND S3.

7. CONCRETE EXPOSED TO THAW AND FREEZE CYCLES (F1, F2, F3) SHALL BE AIR ENTRAINED PER TABLE 19.3.1 OF THE ACI.

8. AGGREGATE FOR HARDROCK CONCRETE SHALL CONFORM TO ALL REQUIREMENTS AND TESTS OF ASTM C33 AND PROJECT SPECIFICATIONS. EXCEPTIONS MAY BE USED ONLY WITH PERMISSION OF THE STRUCTURAL ENGINEER.

9. CONCRETE MIXING OPERATION, ETC. SHALL CONFORM TO ASTM C94.

10. PLACEMENT OF CONCRETE SHALL CONFORM TO ACI 301 AND PROJECT SPECIFICATIONS. CLEAN AND ROUGHEN TO $\frac{1}{4}$ " AMPLITUDE ALL CONCRETE SURFACES OR FLATWORK AGAINST WHICH NEW CONCRETE IS TO BE PLACED EXCEPT AT COLD JOINTS.

11. ALL REINFORCING BARS, ANCHOR BOLTS, AND OTHER CONCRETE INSERTS SHALL BE WELL SECURED IN POSITION PRIOR TO PLACING CONCRETE.

12. SEE DETAIL  FOR PIPE AND CONDUIT IN PIERS.

13. PROVIDE MIN $\frac{1}{4}$ " CHAMFER ON ALL EXPOSED CORNERS UNLESS INDICATED OTHERWISE.

14. THE STRUCTURE MAY BE INSTALLED 24 HOURS AFTER THE FOUNDATIONS HAVE BEEN CAST OR AFTER CONCRETE REACHES A MINIMUM COMPRESSIVE STRENGTH OF 1000-PSI, WHICHEVER COMES FIRST. BREAK TESTS NOT REQUIRED IF WAITING UNTIL 24 HOURS TO ERECT.

15. CONCRETE MAY BE PUMPED, POURED, TAILGATED OR OTHER SUCH METHODS INTO PLACE. CONCRETE SHALL BE ALLOWED TO FREE FALL THE ENTIRE DEPTH OF THE FOUNDATION. PLACEMENT OF ANY FREE-FALL CONCRETE SHALL BE SUCH THAT THE CONCRETE DOES NOT ALTER THE EMBEDMENT DEPTH OF THE CLEARANCE OF THE REINFORCING BAR CAGE OR OTHER EMBEDDED MATERIALS. SEE ACI 304R-09 CHAPTER 5 FOR CONCRETE PLACEMENT STANDARDS.

16. CONCRETE SHRINKAGE CRACKS UP TO $\frac{1}{8}$ " SHALL BE CONSIDERED NON-STRUCTURAL.

REINFORCING STEEL

- REINFORCING BARS SHALL BE DEFORMED BARS AND CONFORM TO THE REQUIREMENTS OF CHAPTER 19A OF THE CODE, ASTM A615, DEFORMED GRADE 60 U.N.O.
- ALL BARS SHALL BE CLEAN OF RUST, GREASE, OR OTHER MATERIALS LIKELY TO IMPAIR BOND. ALL REINFORCING BAR BENDS SHALL BE MADE COLD.

- REINFORCING BAR SPICES SHALL, IN CONCRETE, CONFORM TO THE PROVISIONS OF ACI 318. LAP ALL HORIZONTAL BARS AT CORNERS AND INTERSECTIONS. DOWEL ALL VERTICAL REBAR TO FOUNDATIONS. ALL SPICE LOCATIONS ARE SUBJECT TO APPROVAL BY STRUCTURAL ENGINEER AND DSA.
- ALL BARS SHALL BE MARKED SO THEIR IDENTIFICATION CAN BE MADE WHEN THE FINAL IN-PLACE INSPECTION IS MADE.

- WELDING (WHERE APPROVED BY THE STRUCTURAL ENGINEER AND DSA):
 - ALL WELDS SHALL BE IN CONFORMITY WITH THE PROJECT SPECIFICATIONS AND AWS D1.4. SEE SPECIAL INSPECTION SECTION FOR WELDING INSPECTION REQUIREMENTS.
 - ALL REINFORCING BARS TO BE WELDED SHALL BE ASTM A706, U.N.O.
 - ALL WELDS SHALL BE DONE BY AWS CERTIFIED WELDERS USING THE FOLLOWING ELECTRODES, U.N.O.:

ASTM A706	E80XX
ASTM A615	E90XX

6. BARS IN SLABS SHALL BE SECURELY SUPPORTED ON WELL-CURED CONCRETE BLOCKS OR APPROVED METAL CHAIRS, PRIOR TO PLACING CONCRETE.

7. REINFORCING STEEL SHALL BE DETAILED IN ACCORDANCE WITH ACI 315.

8. REBAR SPACINGS GIVEN ARE MAXIMUM ON CENTER WHETHER STATED AS "O.C." OR NOT. UNLESS A SPECIFIED LENGTH IS GIVEN, ALL REBAR IS CONTINUOUS WHETHER STATED AS "CONT." OR NOT.

9. CONTINUOUS INSPECTION OF CONCRETE SHALL INCLUDE INSPECTION DURING INSTALLATION OF REINFORCING STEEL. INSPECTION SHALL

GENERAL STRUCTURAL NOTES (G.S.N.)

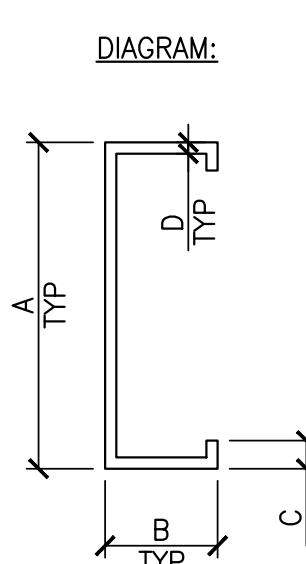
COLD-FORMED STEEL IDENTIFICATION

- MEMBER IDENTIFICATION IS AS FOLLOWS:
 - MEMBER DEPTH (INCHES)
 - FLANGE WIDTH (INCHES)
 - LIP LENGTH (INCHES) (WHERE OCCURS)
 - ALL MEMBER DEPTHS ARE TAKEN IN 1/100 INCH INCREMENTS.
- MATERIAL THICKNESS:

(EXAMPLE: 0.054" = 54 MIL = $5\frac{1}{200}$ INCHES)

MATERIAL THICKNESS IS THE MINIMUM BASE METAL THICKNESS IN MILS.

MINIMUM BASE METAL THICKNESS REPRESENTS 95% OF THE DESIGN THICKNESS.



- ALL CALCULATED MEMBER PROPERTIES PER AISI SPECIFICATIONS ARE BASED ON THE FOLLOWING THICKNESSES:

MINIMUM THICKNESS	REFERENCE GAUGE	DESIGN THICKNESS
54 MIL	16 GA	0.056"
71 MIL	14 GA	0.075"
97 MIL	12 GA	0.1017"
118 MIL	10 GA	0.1242"

COLD-FORMED STEEL

- GENERAL
 - ALL COLD-FORMED METAL FRAMING CONSTRUCTION SHALL BE IN ACCORDANCE WITH AISI S100-16, "SPECIFICATIONS FOR DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS".
 - ALL COLD-FORMED STRUCTURAL MEMBERS SHALL BE PER ICC ESR-3064P.
 - ALL COLD-FORMED STEEL SHALL CONFORM TO THE FOLLOWING:

ASTM A 653 CR 55 OR
 ASTM A 1011 GR 55
- WELDING IS NOT PERMITTED UNLESS SPECIFICALLY APPROVED BY ENGINEER OF RECORD.
- ALL APPROVED WELDING SHALL BE PERFORMED BY WELDERS CERTIFIED FOR ALL APPROPRIATE DIRECTIONS COMPLYING WITH AWS D1.3. WELDING RODS SHALL CONFORM TO THE FOLLOWING:

43 MIL AND LIGHTER	E60XX
54 MIL AND HEAVIER	E70XX OR E6013
COLD-FORMED TO STRUCTURAL STEEL	E70XX LOW HYDROGEN

F. WIRE TYING OF FRAMING COMPONENTS SHALL NOT BE PERMITTED.

G. TEMPORARY BRACING REQUIREMENTS ARE THE RESPONSIBILITY OF THE CONTRACTOR.

H. ALL SCREWS SHALL BE FULLY DRIVEN AND PROTRUDE THE LARGER OF 3 THREADS OR $\frac{1}{4}$ " THROUGH THE LAST MATERIAL JOINED. THERE SHALL BE NO SPACE BETWEEN JOINING MEMBERS AT THE SCREW LOCATION.

I. ALL FIELD CUTTING OF MEMBERS SHALL BE BY SAWING OF SHEARING. TORCH OR PLASMA CUTTING OF MEMBERS SHALL NOT BE PERMITTED.

J. ALL FRAMING COMPONENTS SHALL BE CUT SQUARELY FOR ATTACHMENT TO PERPENDICULAR MEMBERS OR AS REQUIRED ON AN ANGULAR FIT AGAINST ADJACENT MEMBERS. MEMBERS SHALL BE HELD POSITIVELY IN PLACE UNTIL PROPERLY FASTENED.

K. SPLICING OF PURLINS OR OTHER LOAD CARRYING MEMBERS SHALL NOT BE PERMITTED UNLESS SPECIFICALLY APPROVED BY THE ENGINEER OF RECORD.

L. MEMBERS SHALL BE IDENTIFIED PER SECTION 2203A.1 OF 2016 CBC PART 2, VOLUME 2.

M. ALL SHEET METAL SCREWS (SMS) SHALL BE ELCO DRILL-FLEX (ICC ESR-3332) OR ITW BUILDEX TEKS SELECT (ICC ESR-3223) UNLESS APPROVED BY THE SEOR.

ABBREVIATIONS

A.B.	ANCHOR BOLT(S)	EW	EACH WAY	OPP	OPPOSITE
®	AT	EXIST		PCF	POUNDS PER CUBIC FOOT
ACI	AMERICAN CONCRETE INSTITUTE	FND	FOUNDATION	PEN	PENETRATION
ADD'L	ADDITIONAL	FS or F.S.	FAR SIDE	P _l	PLATE OR PROPERTY LINE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	FT	FOOT or FEET	PERP	PERPENDICULAR
APPROX.	APPROXIMATE	FTG	FOOTING	REINF	REINFORCED or REINFORCING
ARCH	ARCHITECT or ARCHITECTURAL DOCUMENTS	GA	GAGE or GAUGE	REQ'D	REQUIRED
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	GALV	GALVANIZED	SCHED	SCHEDULE
AWS	AMERICAN WELDING SOCIETY	GR or GRD	GRADE	SECT	SECTION
BLK'G	BLOCKING	G.S.N.	GENERAL STRUCTURAL NOTES	SFRS	SEISMIC FORCE RESISTING SYSTEM
BM	BEAM	HORIZ or HOR	HORIZONTAL	SH or SHT	SHET
BOT or B.	BOTTOM	HDG	HOT DIPPED GALVANIZED	SIM	SIMILAR
BRG	BEARING	ICC	INTERNATIONAL CODE COUNCIL	SMS	SHEET METAL SCREWS
BTWN	BETWEEN	IN	INCH	SOG	SLAB ON GRADE
CANT	CANTILEVER	INCL	INCLUDE	SP or SPCs	SPACES
CBC	CALIFORNIA BUILDING CODE	INFO	INFORMATION	SPEC	SPECIFICATION
CFS	COLD-FORMED STEEL	LG	LONG	SO	SQUARE
CIP	CAST IN PLACE	LGS	LIGHT GAUGE STEEL	STD	STANDARD
CL or CLR	CLEAR	LLH	LONG LEG HORIZONTAL	STIFF	STIFFENER
CL	CENTER LINE	LVL	LONG LEG VERTICAL	STL	STEEL
COL	COLUMN	LOC	LOCATION	T&B	TOP AND BOTTOM
CONC	CONCRETE	MATL	MATERIAL	THK	THICK or THICKNESS
CONN	CONNECTION	MAX	MAXIMUM	TOC	TOP OF CONCRETE
CONT	CONTINUE or CONTINUOUS	MB	MACHINE BOLT	TOS	TOP OF STEEL
DIA or ø	DIAMETER	MECH	MECHANICAL	TYP	TYPICAL
DIM	DIMENSION	MFR or MANUF	MANUFACTURER	U.N.O.	UNLESS NOTED OTHERWISE
DL	DEAD LOAD	MIN	MINIMUM	VERT	VERTICAL
DN	DOWN	MISC	MISCELLANEOUS	V.I.F.	VERIFY IN FIELD
DSA	DIVISION OF THE STATE ARCHITECT	MTL	METAL	w/	WITH
DWG	DRAWING(S)	No. or #	NUMBER	w/o	WITHOUT
EA	EACH	N.T.S.	NOT TO SCALE	WT or WGT	WEIGHT
E.F.	EACH FACE	OC or O/C	ON CENTER		
EQ	EQUAL	O.H.	OPPOSITE HAND		
ES or E.S.	EACH SIDE	OPNG	OPENING		



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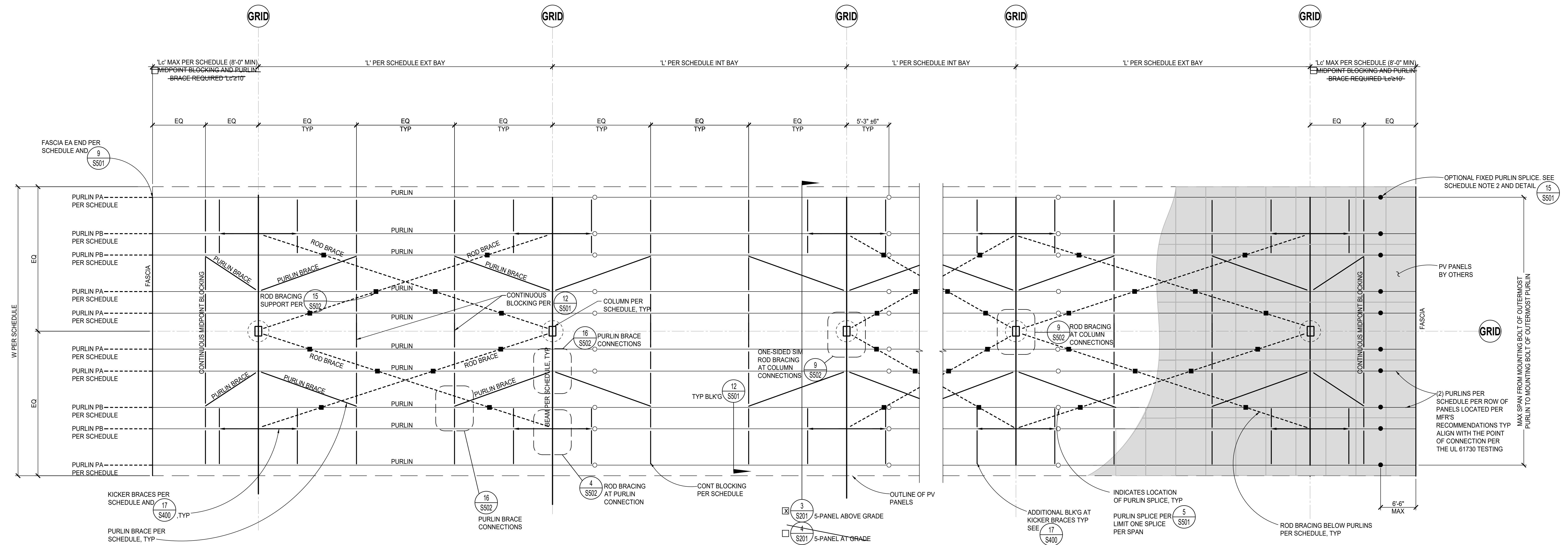
DSA PC APPROVAL	
APPROVED	
DIV. OF THE STATE ARCHITECT	
APP. 04-74993 PC	
REVIEWER FOR	
SS <input checked="" type="checkbox"/>	FLS <input checked="" type="checkbox"/>
ACS <input checked="" type="checkbox"/>	CG <input type="checkbox"/>
DATE: 07/26/2023	



REVISION SCHEDULE	
Design No.	Description
02/14/2023	CB
05/23/2023	JM SN
07/11/2023	JN SN
07/21/2023	JN SN
07/21/2023	TEICHERT / KPFF
07/21/2023	DSA - PC PV STRUCTURE SYSTEM

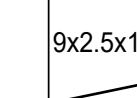
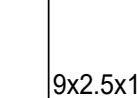
DATE 07/21/2023
 DRAWN BY JM
 SHEET S102
 ORIGINAL SHEET SIZE 30 x 42
 IF BAR IS NOT TO SCALE - DRAWING IS NOT TO SCALE

S102



1 T5 FRAMING PLAN

SCALE: $\frac{3}{16}$ "=1'-0"

T5 DESIGN	<input checked="" type="checkbox"/> $S_{DS} \leq 1.00g$											
	ARRAY ID	# OF COLUMN	MAX STRUCTURE WIDTH "W"	MAX COLUMN SPACING 'L' (SEE NOTE 1)	HSS COLUMN	WF BEAM	BASE CONNECTION OPTION, HEIGHT PARAMETERS (SEE NOTE 4), AND SECTION DETAIL		MAX PURLIN CANTILEVER 'L_c'	CONTINUOUS BLOCKING	PURLIN BRACE	ROD BRACE CONDITION
<input type="checkbox"/> T5-AS-1.0 <input checked="" type="checkbox"/> T5-AT-1.0	2+ COLUMN (NOTE 2) (2 COL MIN, NO MAX)	38'-9"	37'-9"	HSS14x10x $\frac{3}{8}$	W14x38	ABOVE GRADE, H3 \leq 14'-0", H1 \leq 9'-3", DETAIL 	PURLIN PA: <input checked="" type="checkbox"/> 12x4 $\frac{1}{2}$ x1 $\frac{1}{4}$ x14GA OR <input type="checkbox"/> 12x4x1x14GA PURLIN PB: 12x4 $\frac{1}{2}$ x1 $\frac{1}{4}$ x14GA PROVIDE THIRD POINT BLOCKING (SEE NOTE 1 FOR EXCEPTION) <input type="checkbox"/> AT-GRADE, H3 \leq 14'-0", DETAIL  <input checked="" type="checkbox"/> ABOVE-GRADE, H3 \leq 18'-0", H1 \leq 14'-0" DETAIL 	13'-2"	9x2.5x1x16GA	9x4x1x4GA	EX BAYS AND EVERY OTHER INT BAY	12x5.14GA TRACK
				HSS14x10x $\frac{5}{16}$	W14x38			13'-2"	9x2.5x1x16GA	9x4x1x4GA	EX BAYS AND EVERY OTHER INT BAY	12x5.14GA TRACK
<input type="checkbox"/> T5-AS-1.5 <input type="checkbox"/> T5-AT-1.5	2+ COLUMN (NOTE 2) (2 COL MIN, NO MAX)	38'-9"	37'-9"	HSS14x10x $\frac{3}{8}$	W14x38	ABOVE GRADE, H3 \leq 14'-0", H1 \leq 10'-0", DETAIL 	PURLIN PA: <input type="checkbox"/> 12x4 $\frac{1}{2}$ x1 $\frac{1}{4}$ x14GA OR <input type="checkbox"/> 12x4x1x14GA PURLIN PB: 12x4 $\frac{1}{2}$ x1 $\frac{1}{4}$ x14GA PROVIDE THIRD POINT BLOCKING (SEE NOTE 1 FOR EXCEPTION) <input type="checkbox"/> AT-GRADE, H3 \leq 14'-0", DETAIL  <input type="checkbox"/> AT-GRADE, H3 \leq 15'-0", DETAIL  <input type="checkbox"/> ABOVE-GRADE, H3 \leq 18'-0", H1 \leq 15'-0", DETAIL 	13'-2"	9x2.5x1x16GA	9x4x1x4GA	EX BAYS AND EVERY OTHER INT BAY	12x5.14GA TRACK
				HSS14x10x $\frac{1}{2}$	W14x38			13'-2"	9x2.5x1x16GA	9x4x1x4GA	EX BAYS AND EVERY OTHER INT BAY	12x5.14GA TRACK

SCHEDULE NOTES

1. ~~COLUMN SPACING IS LESS THAN 25'-0", MID-POINT BLOCKING IS ACCEPTABLE IN LIEU OF THIRD POINT BLOCKING. MIN COL SPACING IS 22'-0", TYP. MAX CANTILEVER SPAN FOR MINIMUM COLUMN SPACING IS PER SCHEDULE.~~

2. WHERE (2) COLUMN CONFIGURATION FOR A SINGLE ARRAY OCCURS, PURLINS SHALL BE UNSPLICED AND CONTINUOUS. FOR TOTAL PURLIN LENGTHS GREATER THAN 62'-0" WITH A (2) COLUMN CONFIGURATION, A FIXED PURLIN SPLICER  MAY BE USED (MAX (1) PER PURLIN).

3. THE MAXIMUM NUMBER OF PANEL ROWS IS (6), BUT FEWER PANEL ROWS MAY BE USED. THE MAXIMUM NUMBER OF PANEL ROWS IS 5 OR 4

4. SEE SECTION DETAILS LISTED FOR DEFINITIONS OF "H3" AND "H1"

5. COLUMNS BETWEEN SEPARATE CANOPIES SHALL BE SPACED TO AVOID DRILLED PIER GROUP EFFECTS (FOR BOTH SKIN FRICTION AND LATERAL BEARING). SEE SEPARATION DIMENSION PER GEOTECH RECOMMENDATIONS SECTION ON S100.

SYMBOLS LEGEND:

- ROD BRACE SUPPORTS PER 
- PURLIN SPLICE PER 
- FIXED PURLIN SPLICE PER 

ARRAY ID LEGEND

The diagram illustrates the relationship between the parameters T6, AS, and 1.0 (indicated by three boxes at the top) and the resulting canopy types. Three lines descend from each parameter box to a corresponding canopy type label. The labels are: MAX S_{DS}, S - SHORTER OPTION, T - TALLER OPTION, A - 2 COL MIN (NO MAX), B - 3 COL MIN (NO MAX), C - 2 COL (FIXED), and CANOPY TYPE.

DATE **07/21/2023**

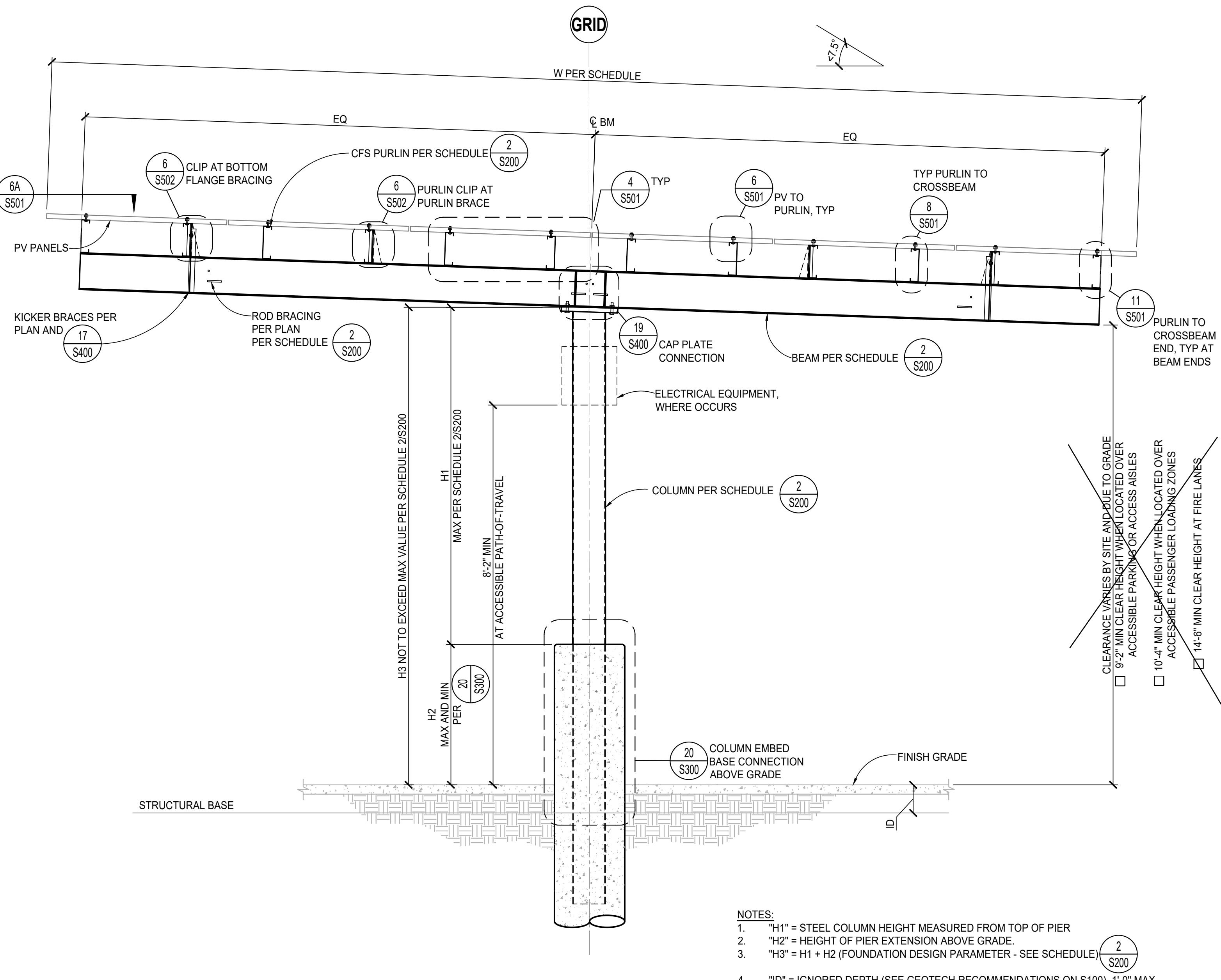
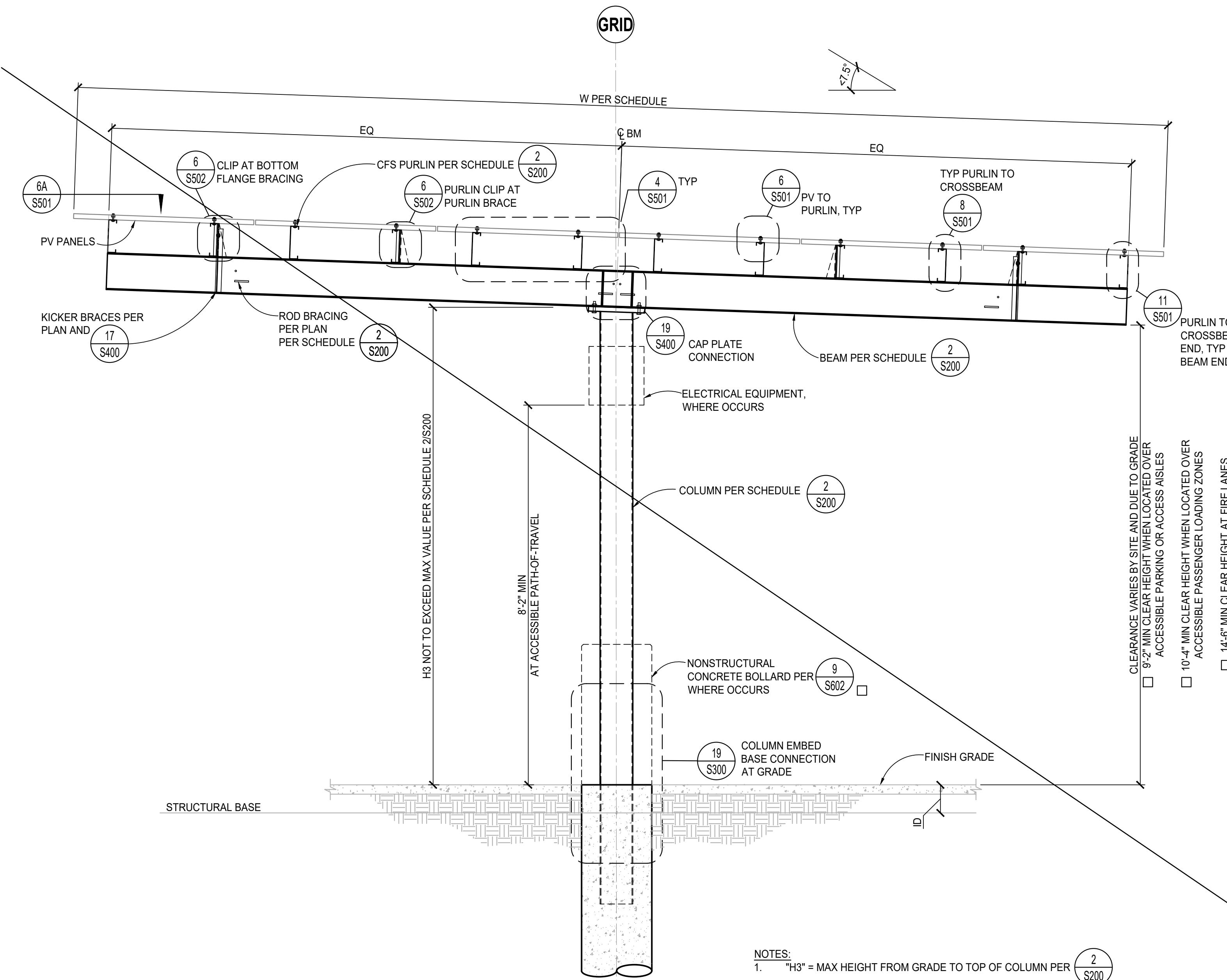
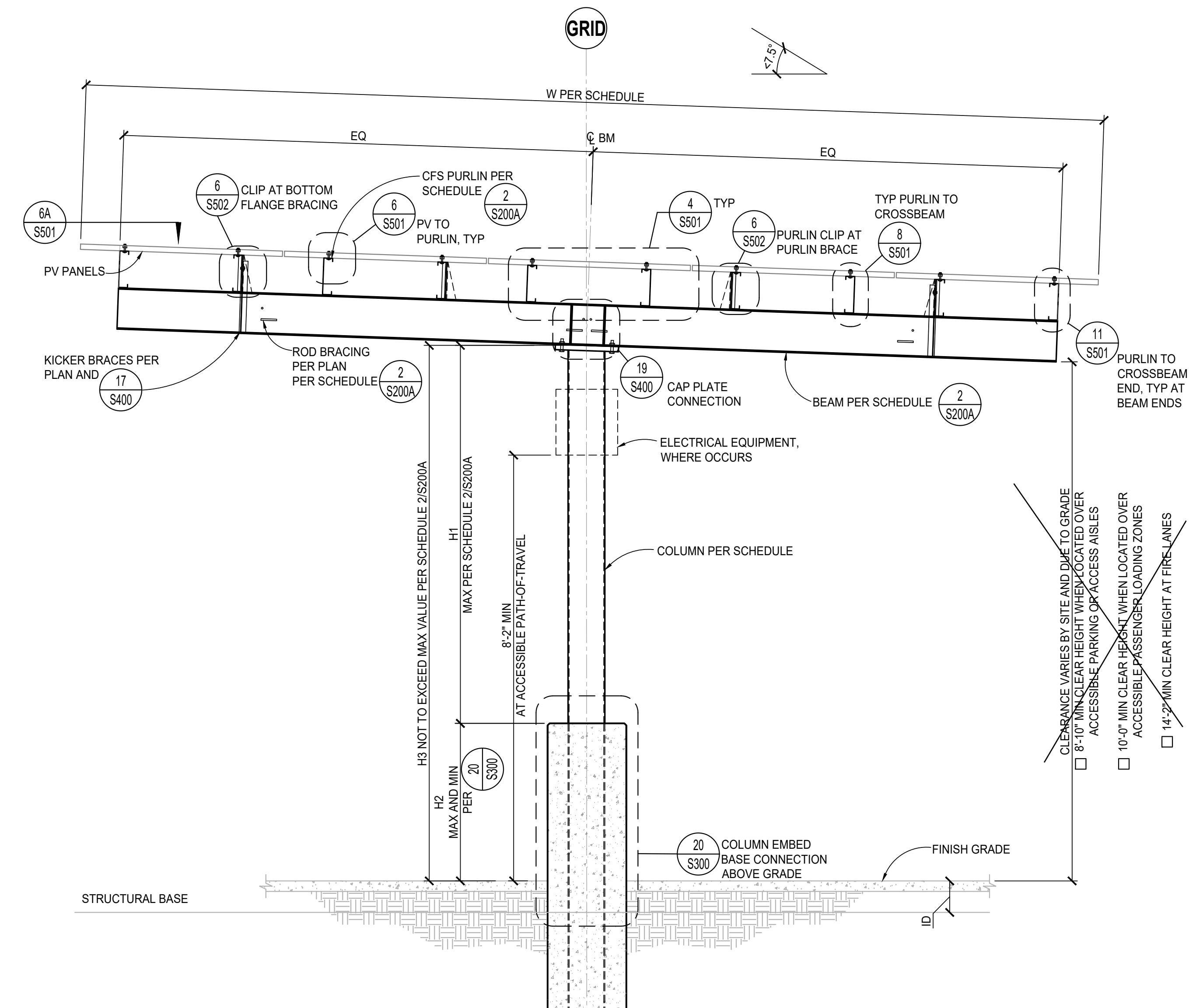
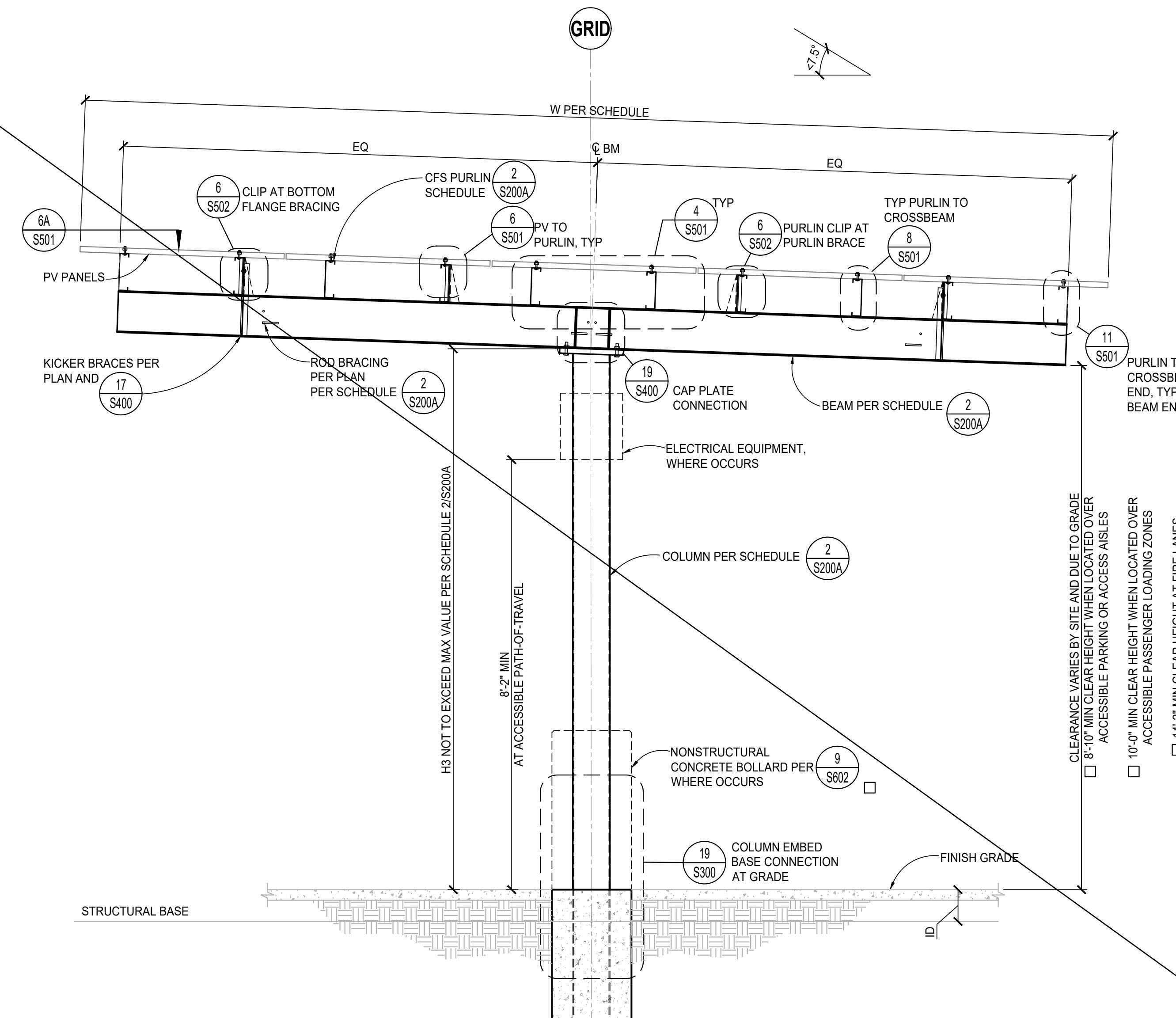
JM

A horizontal strip divided into three equal segments. The middle segment is black, and the two outer segments are white. Above the strip, the text "1\" data-bbox="285 85 305 105" and "2" data-bbox="435 85 455 105" are positioned above the first and second segments respectively, indicating their widths.

ORIGINAL SHEET SIZE 30 x 42
IS NOT TO SCALE - DRAWING IS NOT TO SCALE

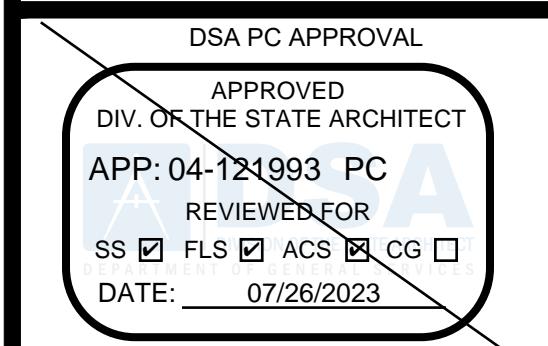
S200A

2 MEMBER SCHEDULE

1 TYPICAL 6 PANEL T-STRUCTURE SECTION (ABOVE-GRADE OPTION) SCALE: $\frac{1}{8}$ "=1'-0"2 TYPICAL 6 PANEL T-STRUCTURE SECTION (AT-GRADE OPTION) SCALE: $\frac{1}{8}$ "=1'-0"3 TYPICAL 5 PANEL T-STRUCTURE SECTION (ABOVE-GRADE OPTION) SCALE: $\frac{1}{8}$ "=1'-0"4 TYPICAL 5 PANEL T-STRUCTURE SECTION (AT-GRADE OPTION) SCALE: $\frac{1}{8}$ "=1'-0"

TEICHERT / KPFF
TEICHERT - KPFF STRUCTURE SYSTEM
DSA - PC PV STRUCTURE SYSTEM

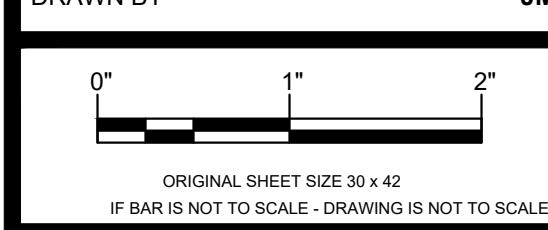
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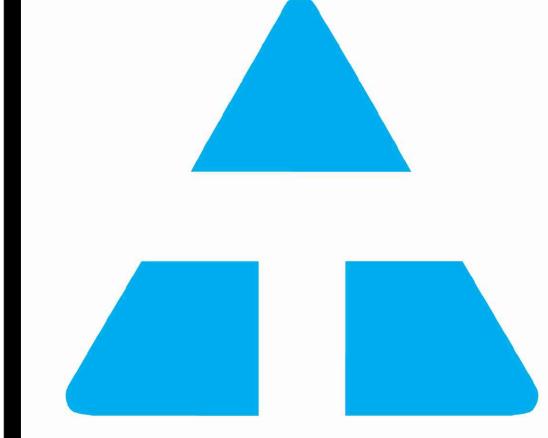
6 AND 5 PANEL
T-STRUCTURE SECTIONS

REVISION SCHEDULE	
No.	Design No. - Description
1	FLAT REVIEW SUBMITTAL 02/14/2023 JM SN
2	CB 02/14/2023 JM SN
3	05/23/2023 JM SN
4	VS SUBMITTAL 07/11/2023 JM SN
5	VZ SUBMITTAL 07/21/2023 JM SN
6	VS SUBMITTAL

DATE 07/21/2023
DRAWN BY JM

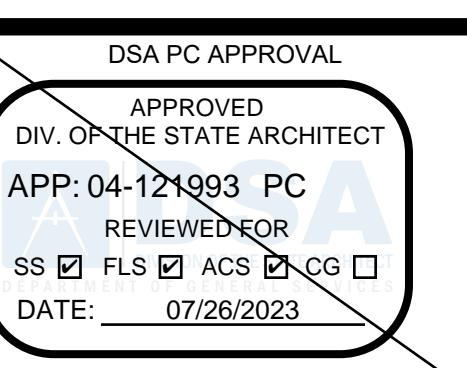


SHEET S201



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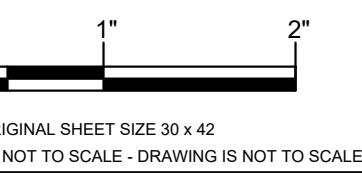
TEICHERT / KPFF
DSA - PC PV STRUCTURE SYSTEM

STEEL DETAILS

REVISION SCHEDULE	
Design No. - Description	Date
FLAR REVIEW SUBMITTAL	02/14/2023 JN SN
V2 SUBMITTAL	05/23/2023 JN SN
V3 SUBMITTAL	07/11/2023 JN SN
V4 SUBMITTAL	07/21/2023 JN SN

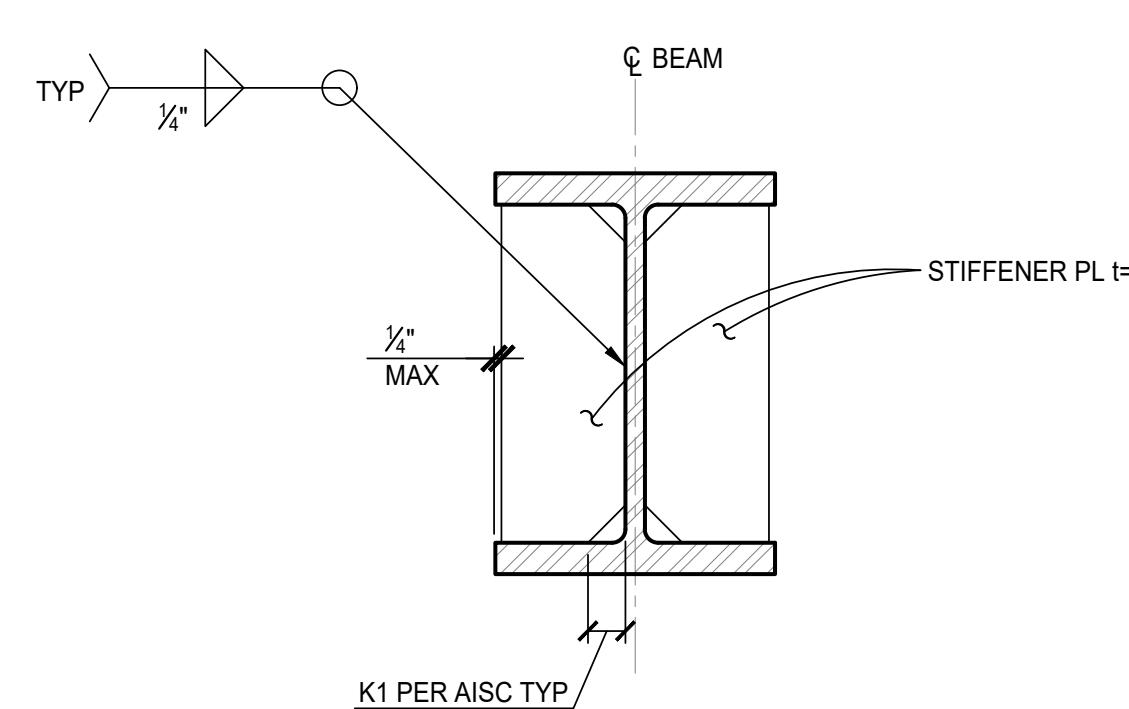
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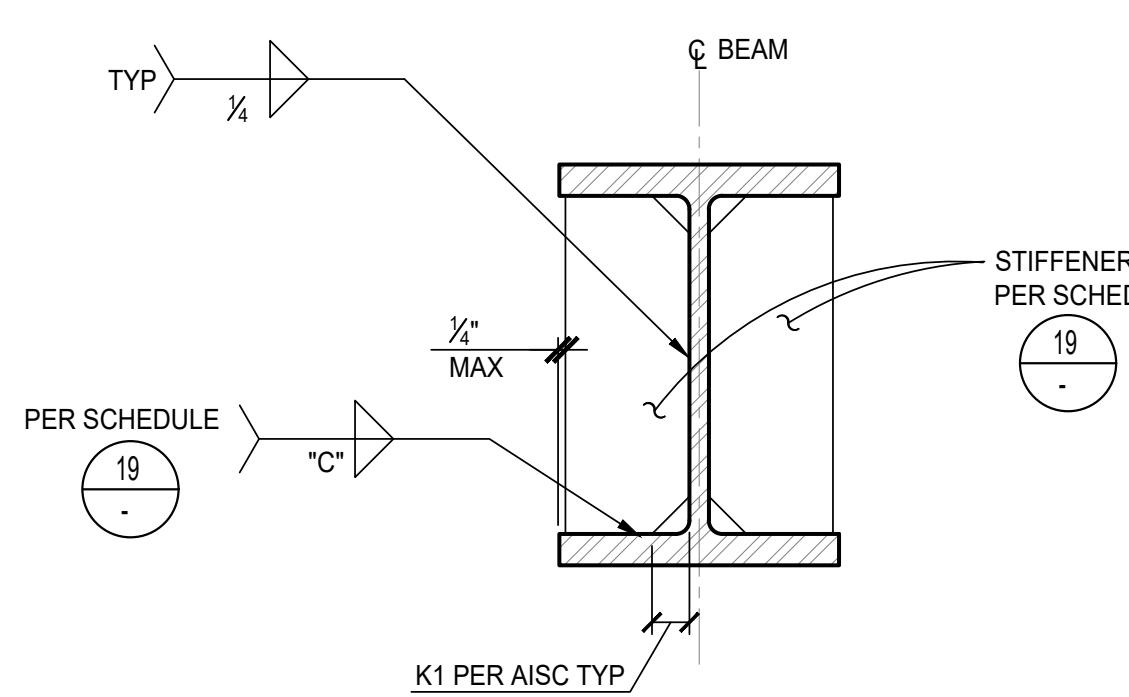


ORIGINAL SHEET SIZE 30 x 42
IF BAR IS NOT TO SCALE - DRAWING IS NOT TO SCALE

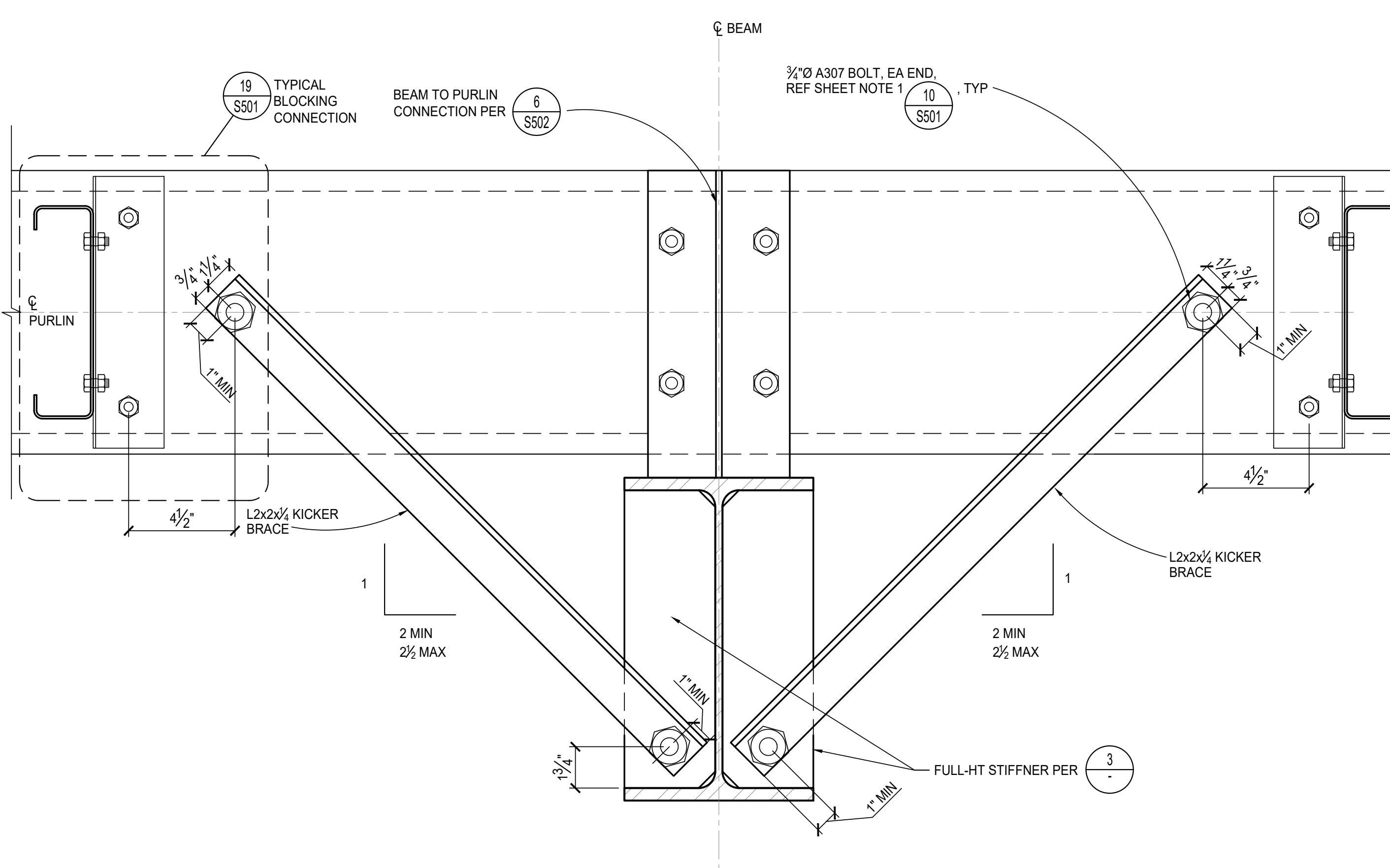
SHEET S400



3 TYPICAL STIFFENER PLATE DETAIL



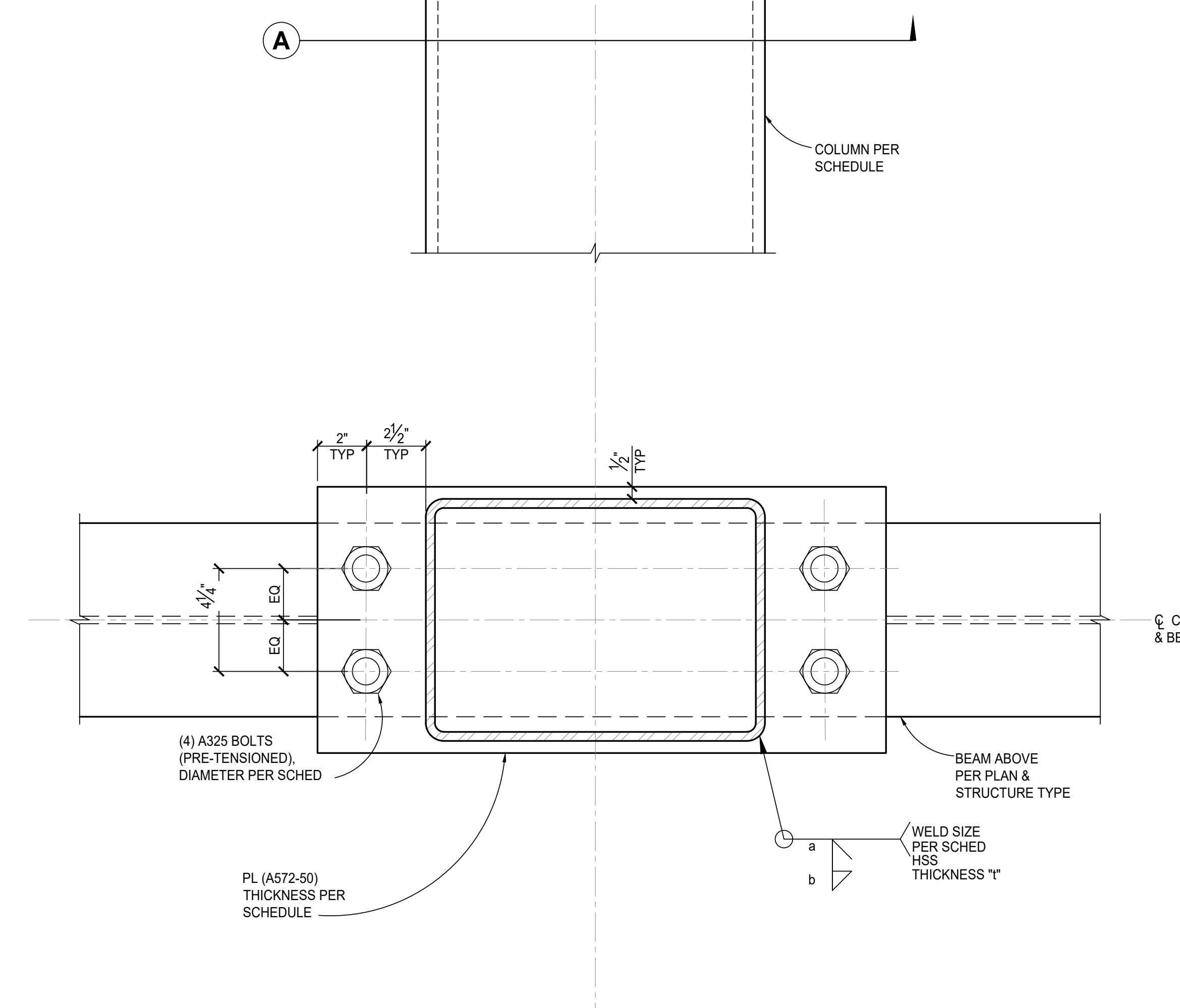
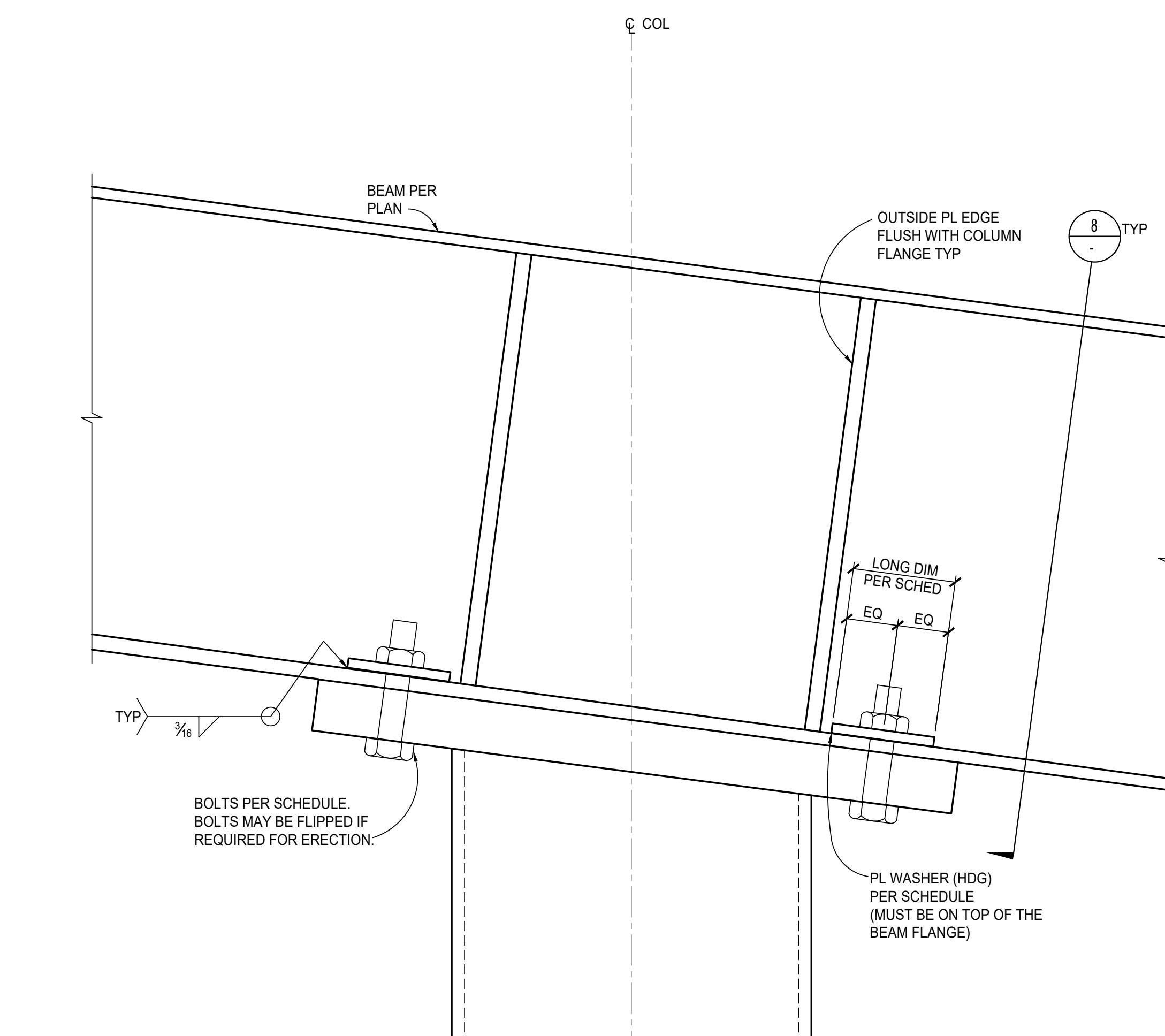
8 STIFFENER PLATE DETAIL AT COLUMN



17 KICKER BRACE DETAIL

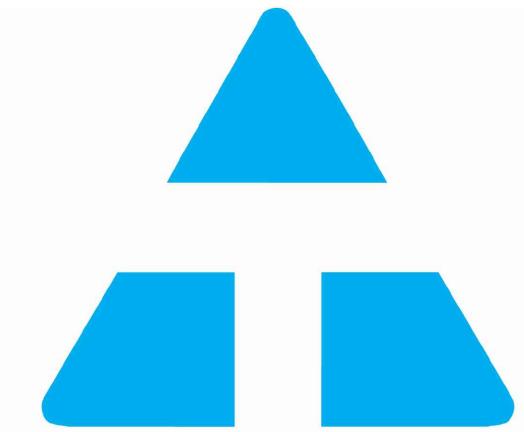
SCALE: 3'-11"

WF BEAM-TO HSS COLUMN SCHEDULE						
STRUCTURE TYPE	WELD SIZE	BOLT DIA	CAP PL THICKNESS	PL WASHER	STIFF PL THICKNESS	WELD SIZE "C"
<input checked="" type="checkbox"/> S ₀₅ <1.50g T-6 STRUCTURE	a = N/A b = 1/8"	1 1/8"	1 1/2"	1/8" x 1/4" x 3 1/2"	1/8"	1/8"
<input checked="" type="checkbox"/> S ₀₅ <1.50g T-5 STRUCTURE	a = N/A b = 1/8"	1"	1 1/4"	1/8" x 1/4" x 3 1/2"	1/8"	1/8"
<input type="checkbox"/> S ₀₅ <1.50g L-4 STRUCTURE	a = 1/8" b = 1/8"	1 1/8"	2"	3/8" x 1/4" x 3 1/2"	1/2"	3/8"
<input type="checkbox"/> S ₀₅ <1.50g L-3 STRUCTURE	a = 1/8" b = 1/8"	1 1/8"	2"	3/8" x 1/4" x 3 1/2"	1/2"	3/8"

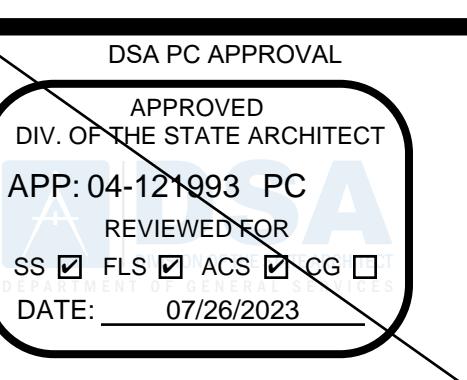
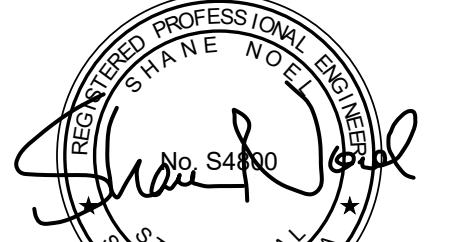


19 BEAM TO COLUMN CONN

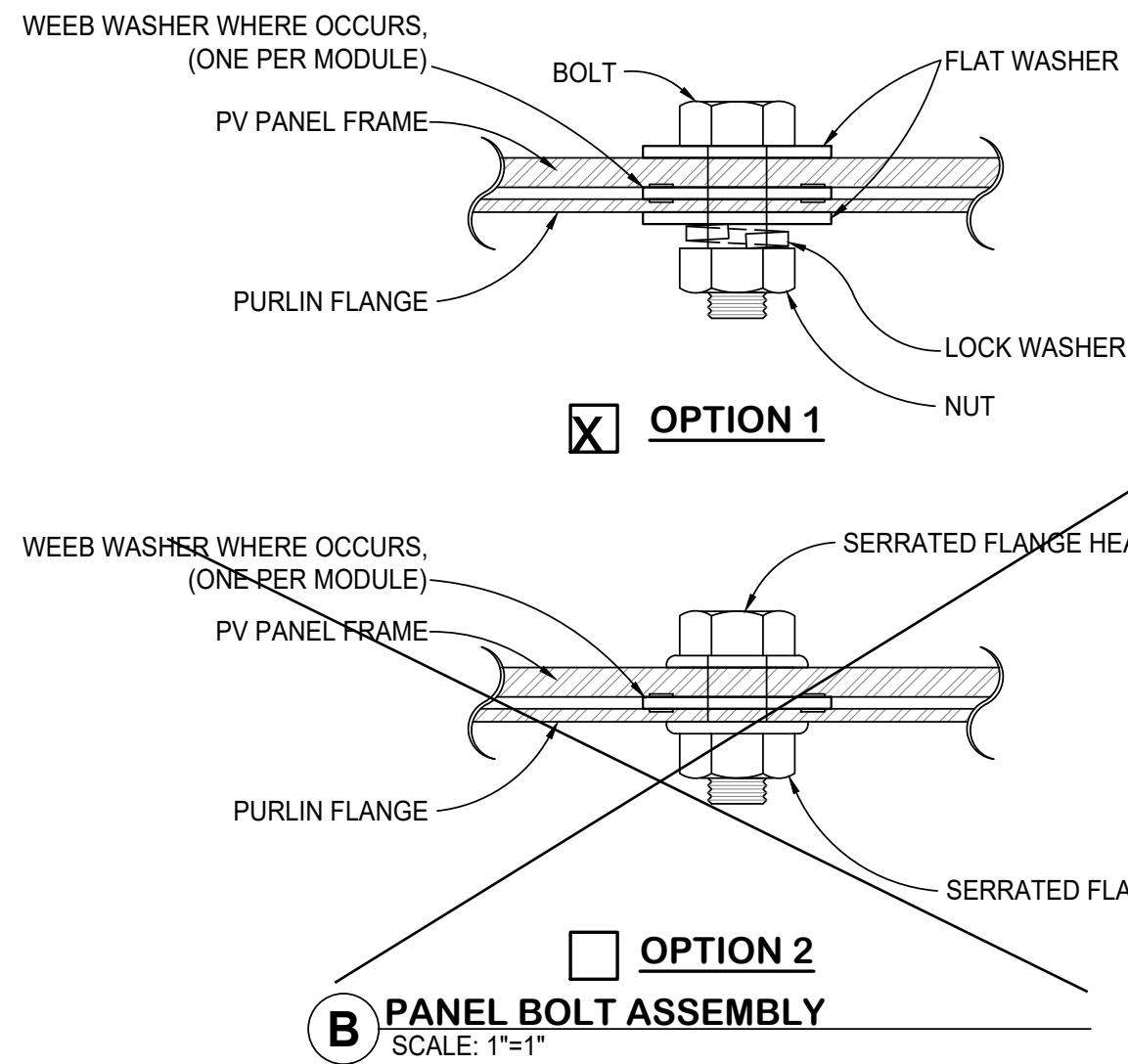
SCALE: 3'-11"



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DSA - PC PV STRUCTURE SYSTEM

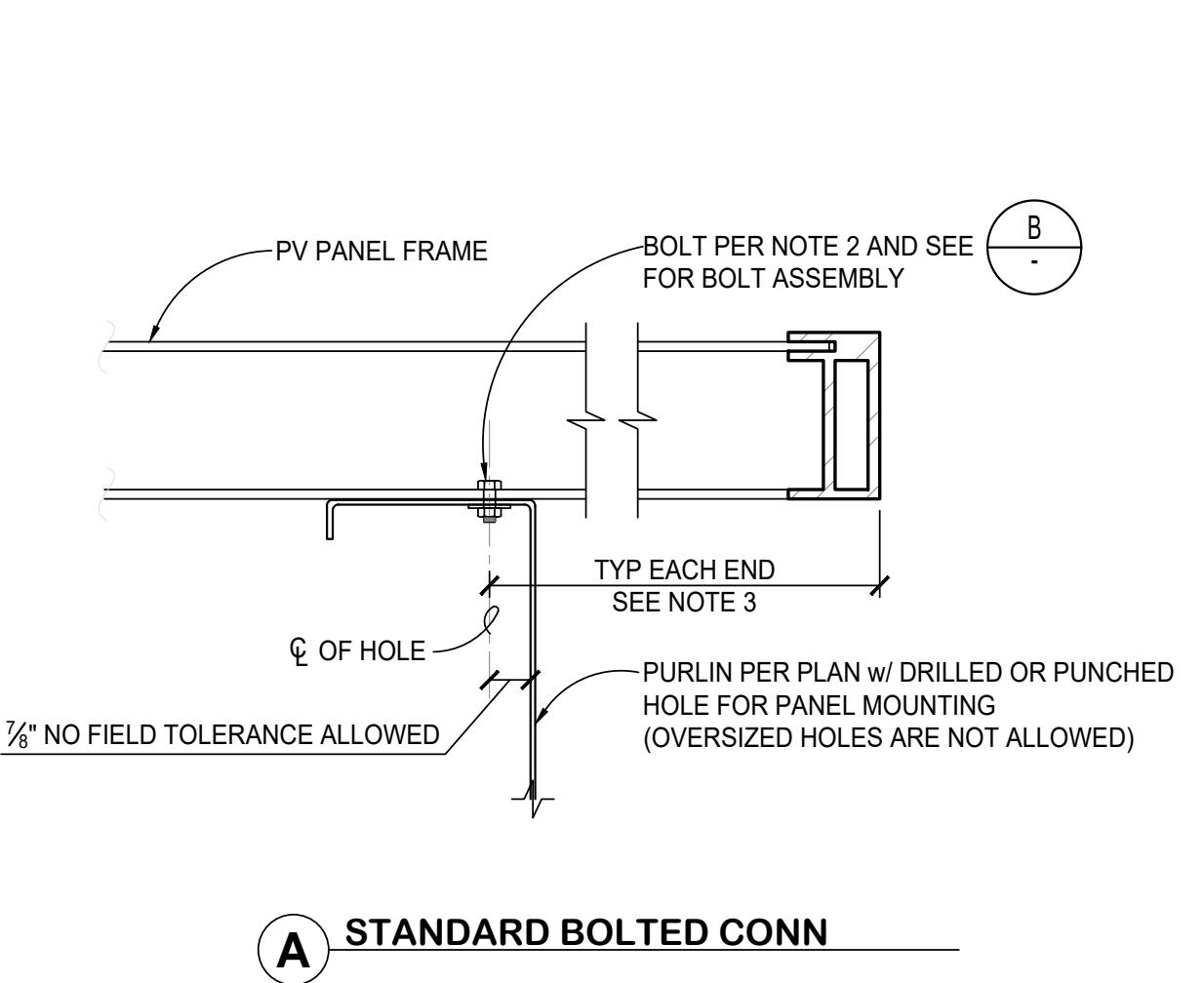
COLD-FORMED DETAILS



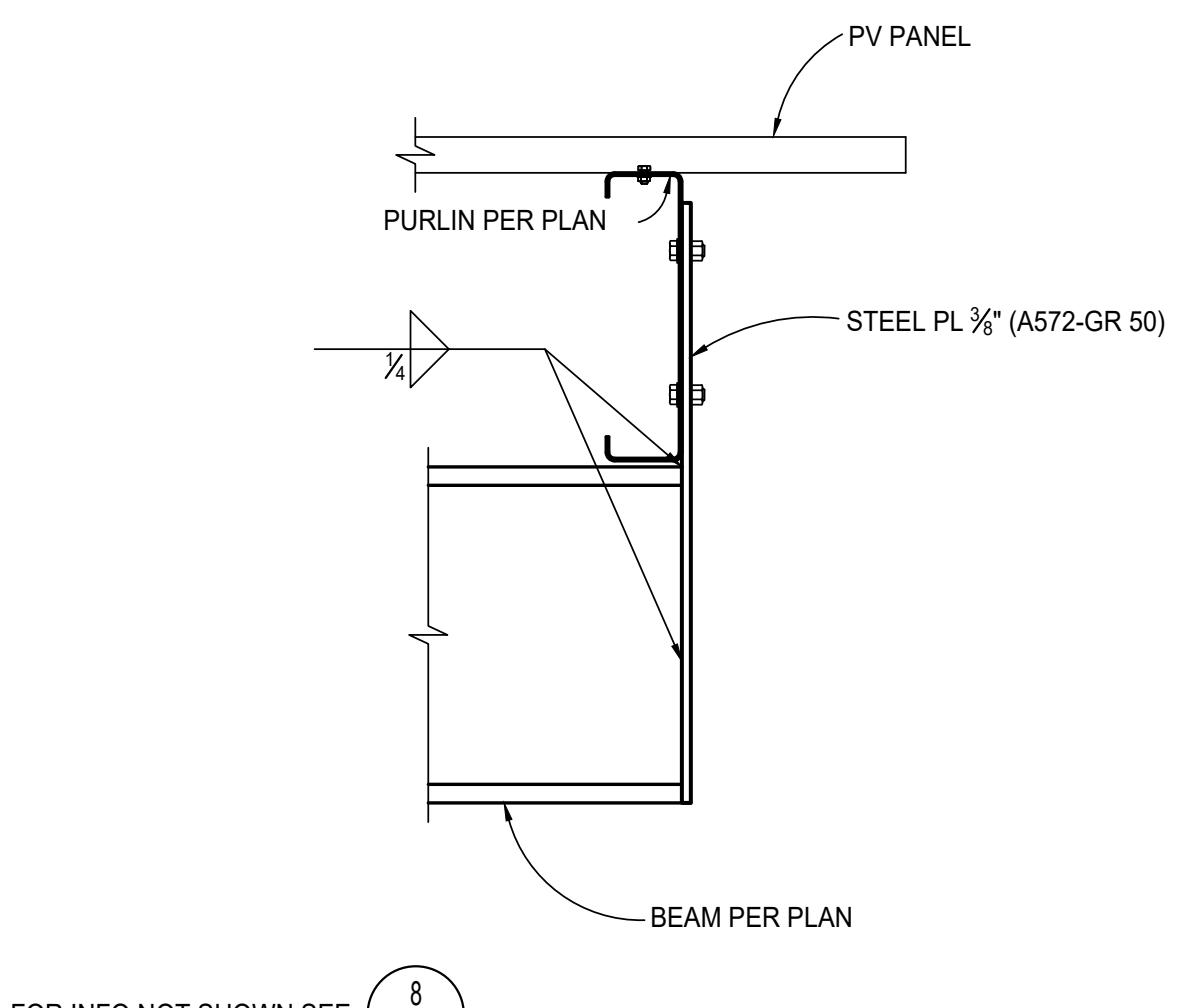
NOTES:

- PRIOR TO PRETENSIONED PANEL FASTENER INSTALLATION, THE CONTRACTOR MUST SUBMIT TO THE PROFESSIONAL IN RESPONSIBLE CHARGE FOR REVIEW AND ACCEPTANCE A DETAIL DRAWING OF THE PRETENSIONED PANEL FASTENER PROCEDURE OUTLINING PROVISIONS TO ENSURE ALL PRETENSIONED PANEL FASTENERS ARE INSTALLED AND TORQUED WITHIN THE SPECIFIED MINIMUM AND MAXIMUM TORQUE RANGE. A COPY OF THE RESPONSIBLE DESIGN PROFESSIONAL-ACCEPTED INSTALLATION PROCEDURE SHALL BE PROVIDED TO THE SPECIAL INSPECTOR AND PROJECT INSPECTOR PRIOR TO COMMENCING PANEL FASTENER INSTALLATION.
- SPECIAL INSPECTION AND TORQUE TESTING OF PRETENSIONED PANEL FASTENER INSTALLATION SHALL BE PERFORMED BY A QUALIFIED REPRESENTATIVE OF THE LABORATORY OF RECORD (LOR) IN ACCORDANCE WITH SECTION 2.1.8 OF DSA R-PC-7 PC DESIGN CRITERIA FOR CANTILEVERED CANOPY STRUCTURES.
- BOLT SIZE PER PANEL MFR. SEE SCHEDULE BELOW. BOLT SHALL BE ASTM F593C AND NUT SHALL BE ASTM F594C.
- CONNECTION LOCATION TO ALIGN WITH THE POINT OF CONNECTION ON THE SITE SPECIFIC PV PANEL PER THE UL 61730 TESTING.

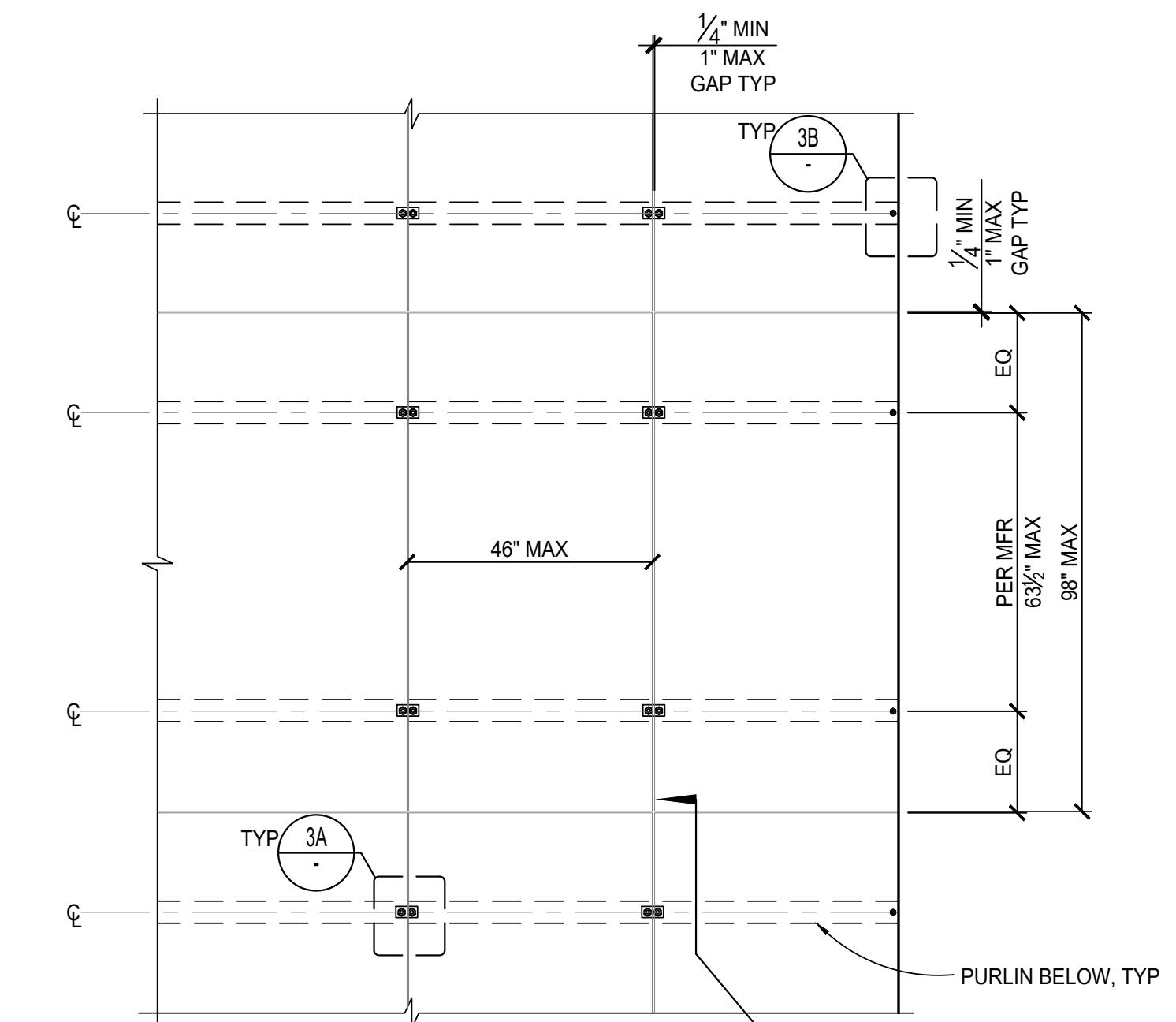
PANEL BOLT SCHEDULE	
BOLT SIZE	TORQUE RANGE
<input type="checkbox"/> $\frac{1}{8}$ "	8-10 FT-LB
<input checked="" type="checkbox"/> $\frac{3}{16}$ "	12-15 FT-LB



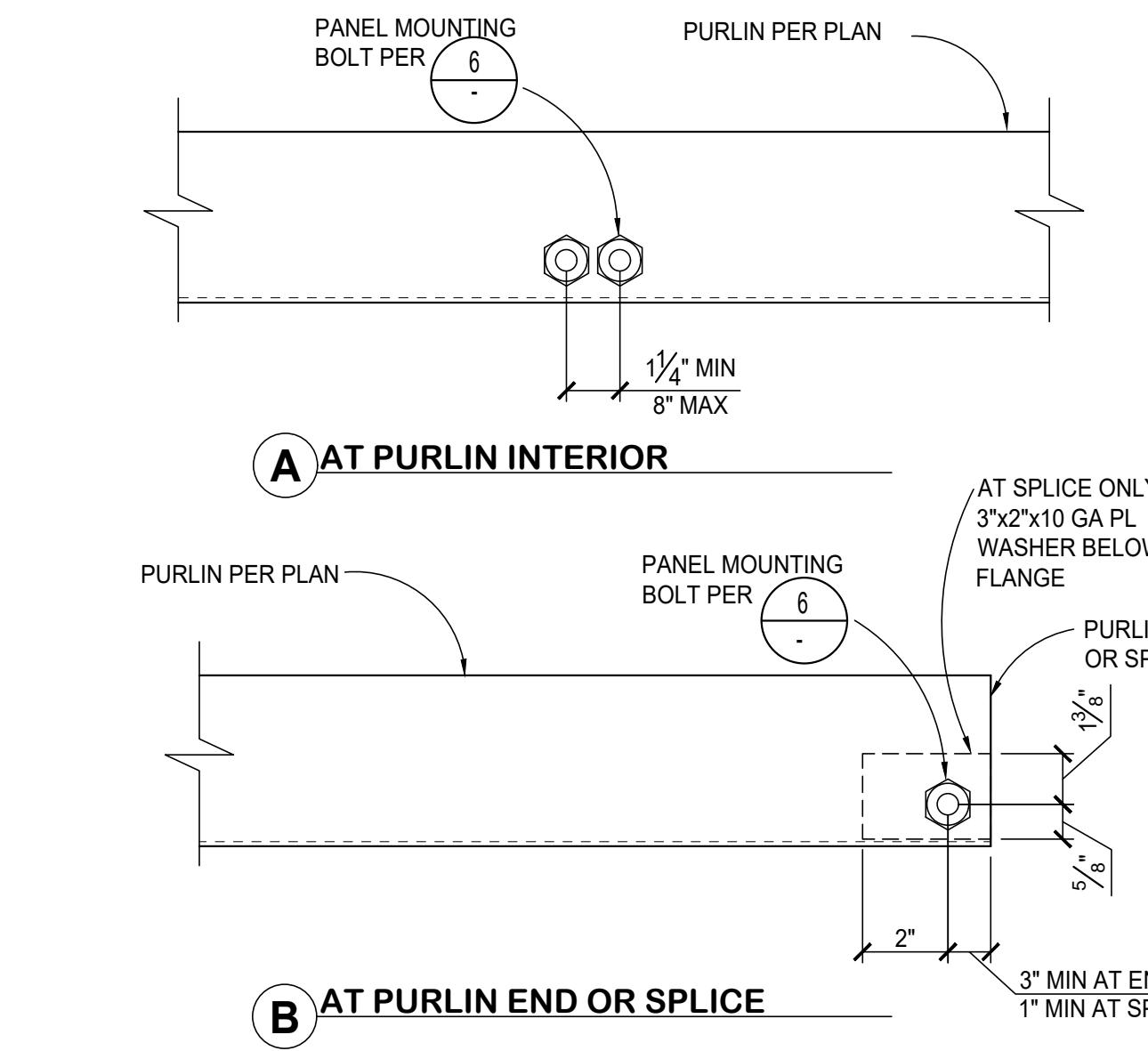
6 PV PANEL ATTACHMENT DETAIL

SCALE: $\frac{1}{8}$ "=1'-0"

11 PURLIN TO BEAM CONN AT END CONDITION

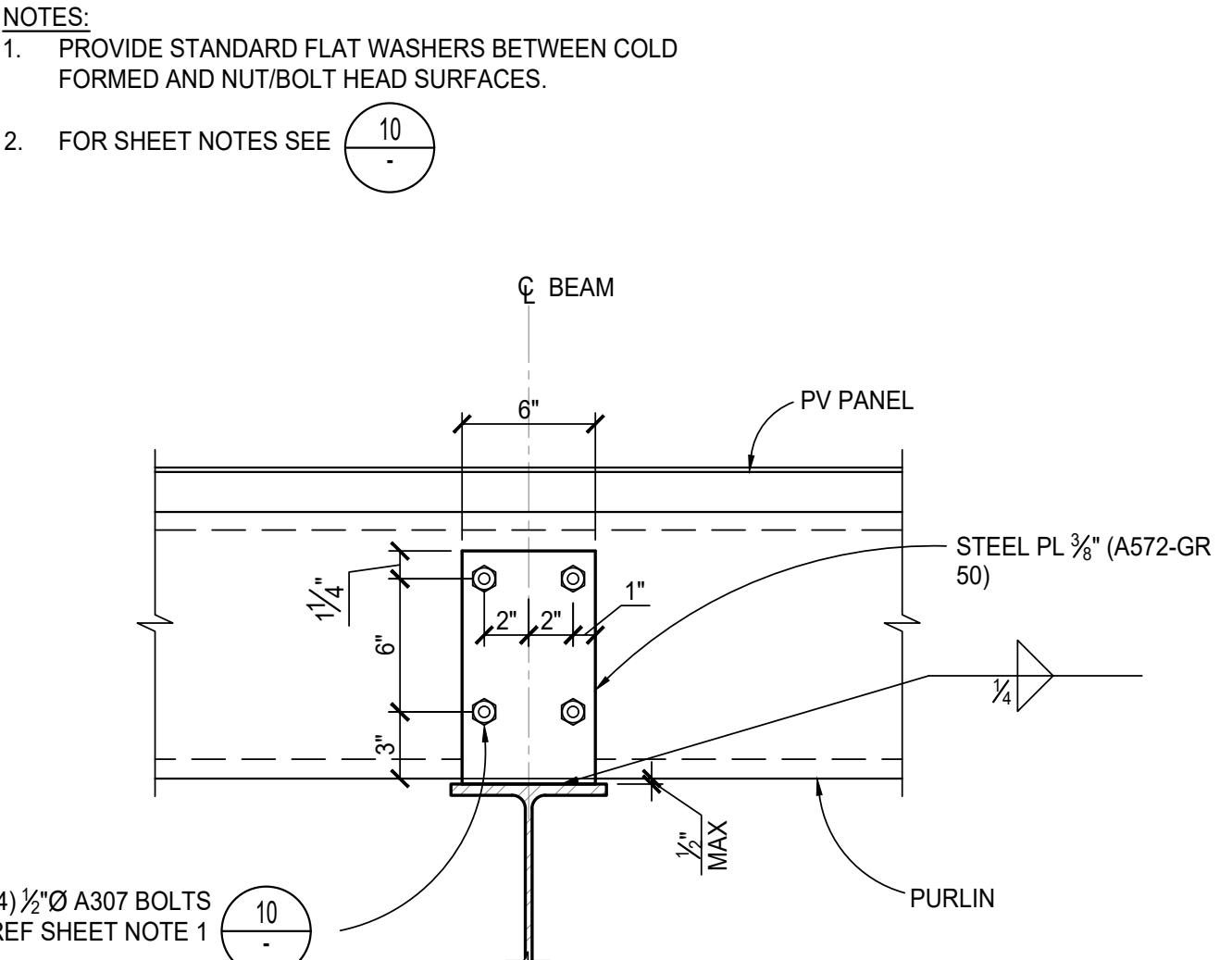
SCALE: $\frac{1}{8}$ "=1'-0"

8 BEAM TO PURLIN CONN

SCALE: $\frac{1}{8}$ "=1'-0"

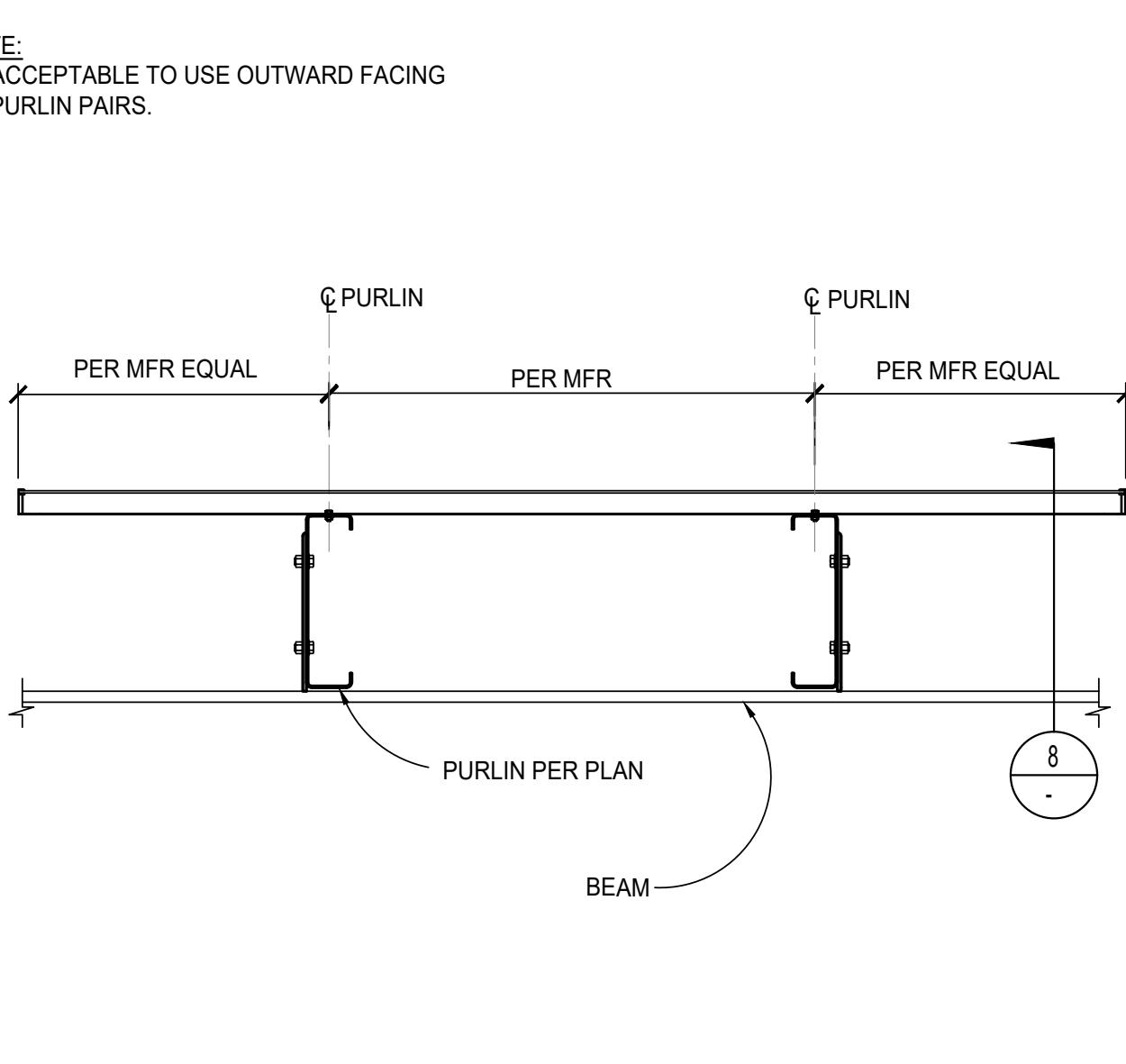
3 MOUNTING BOLT SPACING AND EDGE DISTANCE

SCALE: 3'-0"



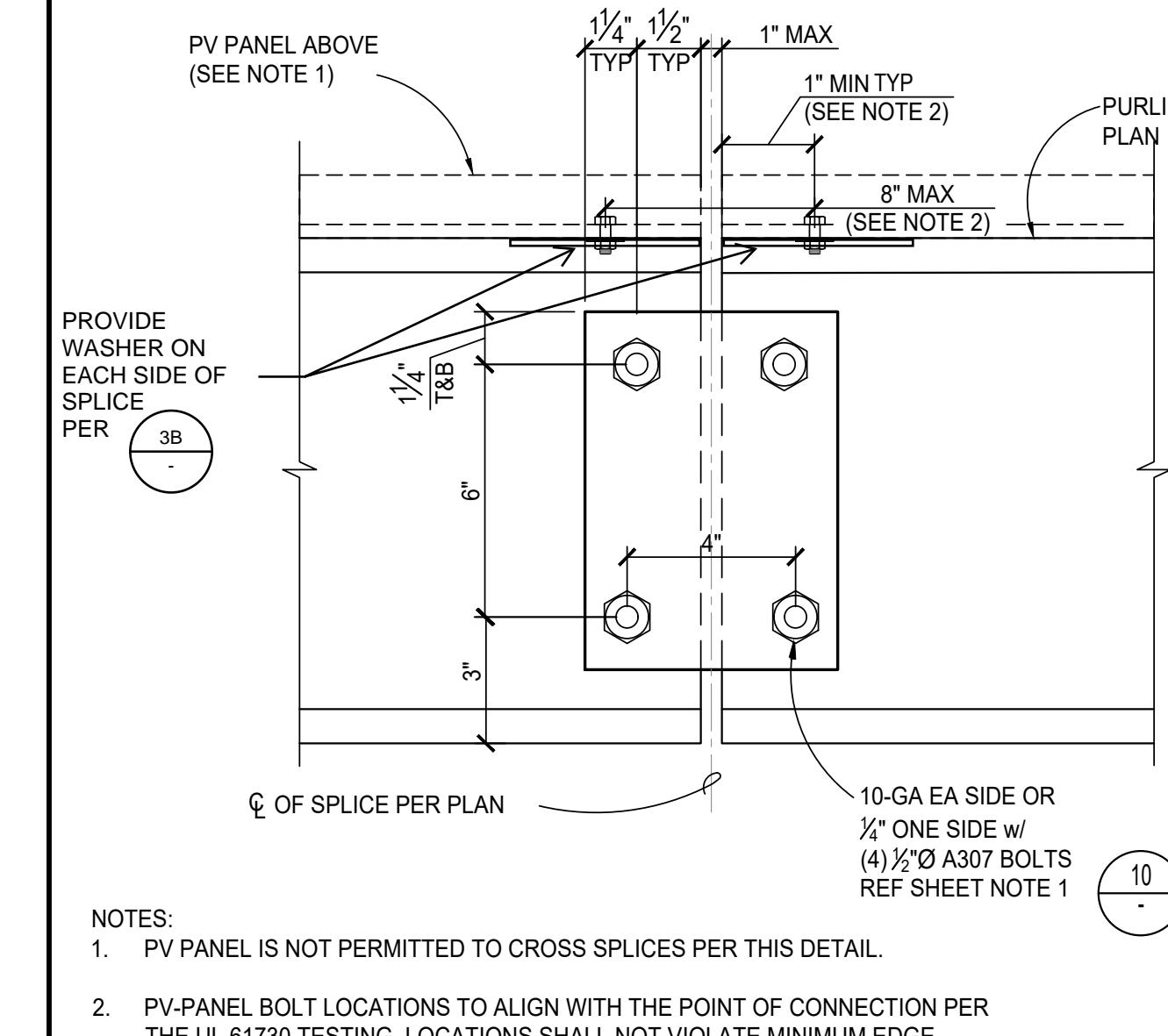
4 TYP SECTION PV PANEL UNIT

SCALE: 1"-1'-0"



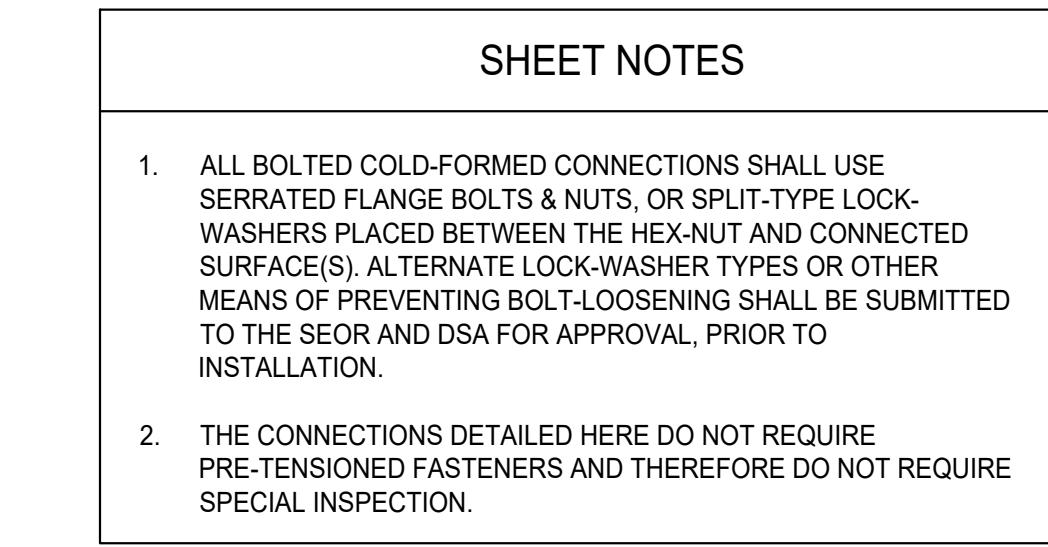
5 TYPICAL PURLIN TO PURLIN CONN

SCALE: 3'-0"



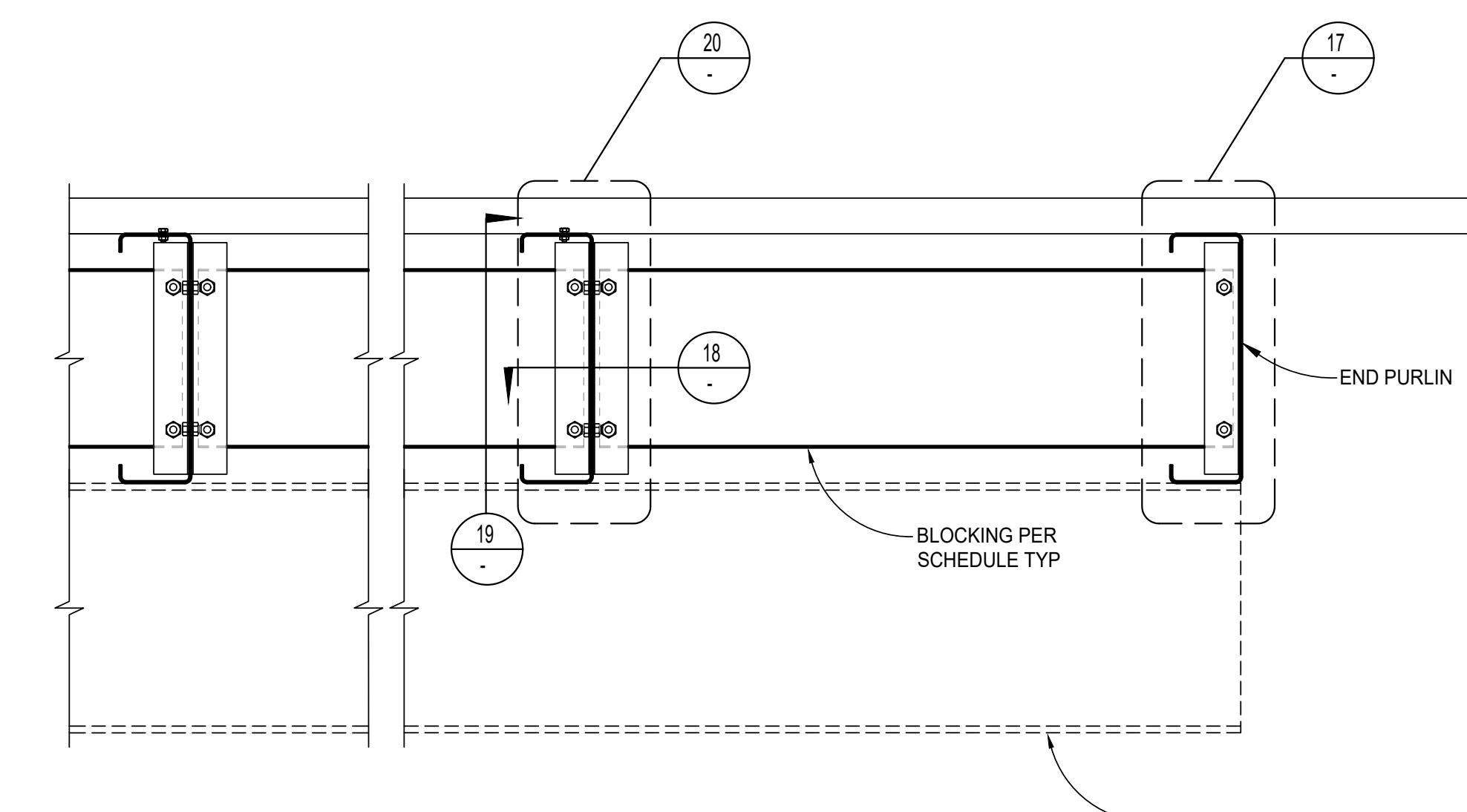
6 PURLIN FASCIA CONNECTION

SCALE: 3'-0"

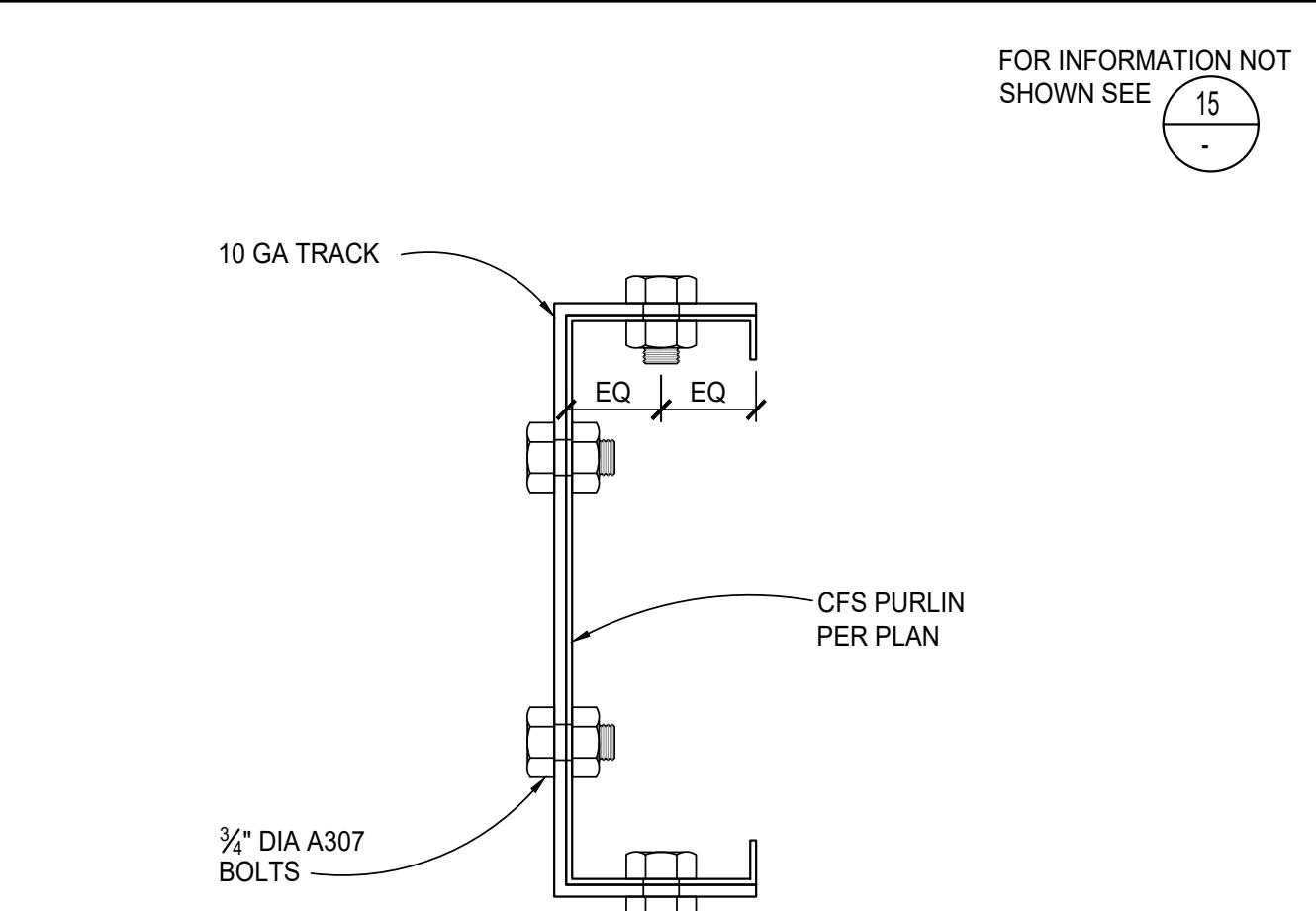


10 SHEET NOTES

SCALE: NTS

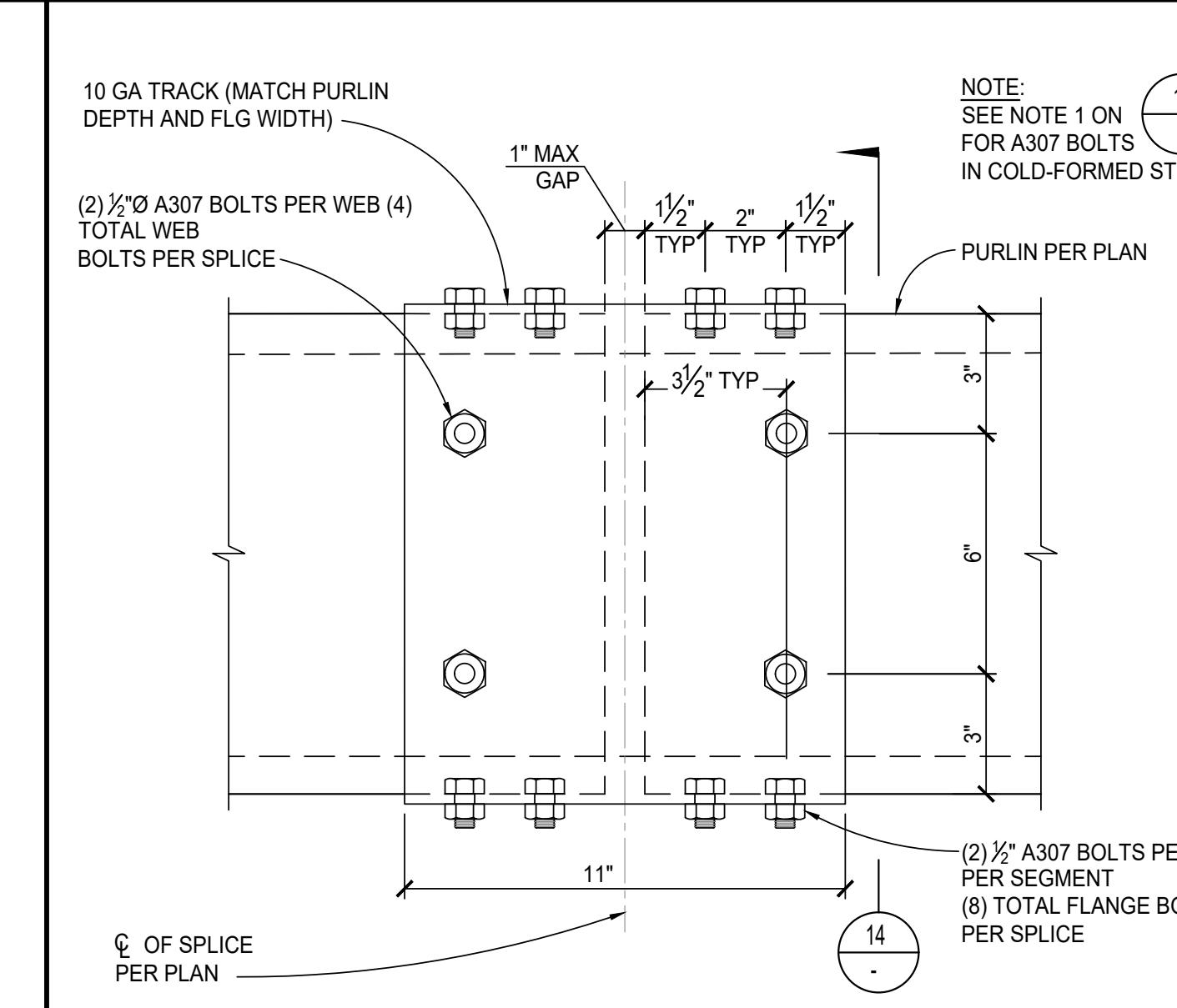


12 BLOCKING DETAIL

SCALE: $\frac{1}{8}$ "=1'-0"

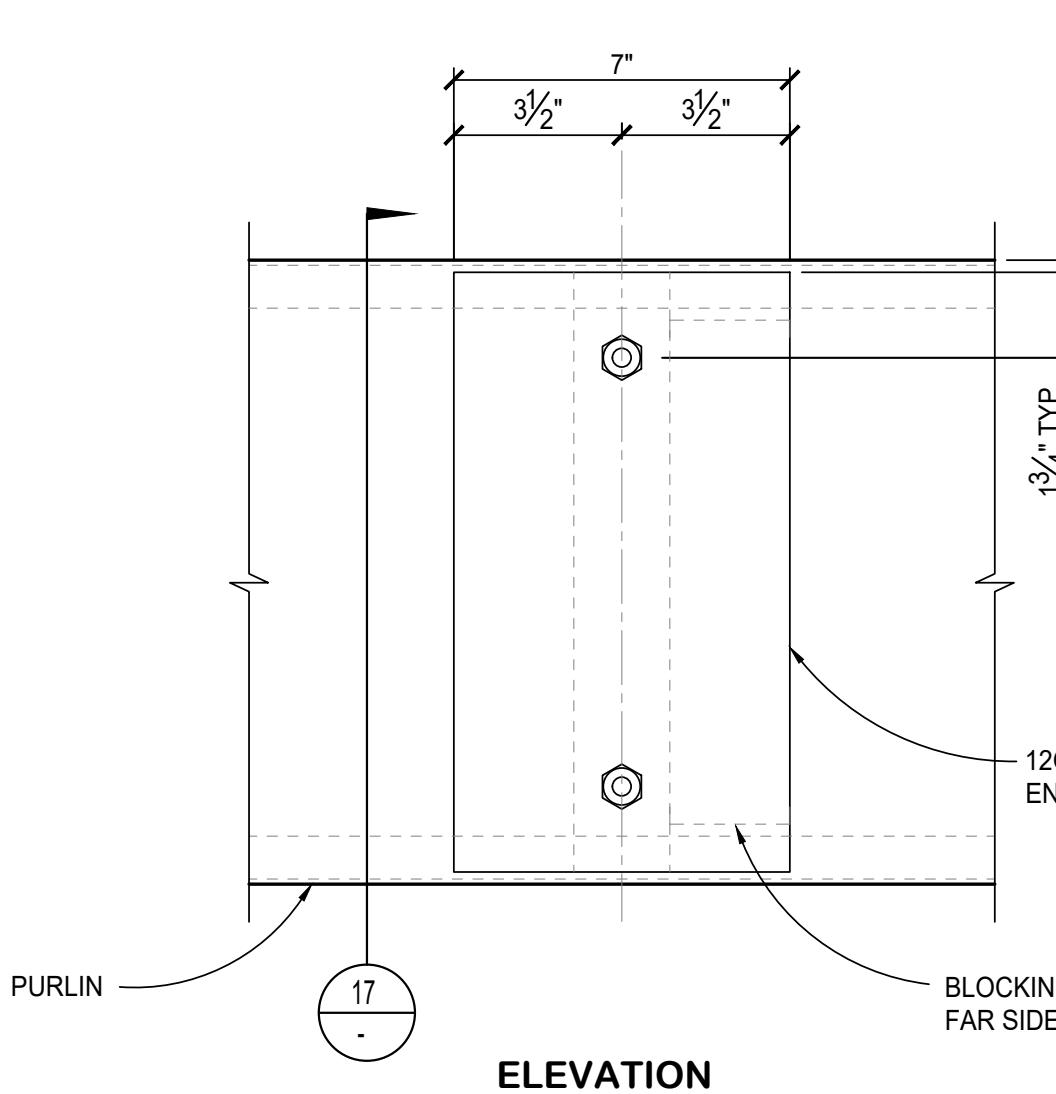
14 FIXED PURLIN SPLICE

SCALE: 3'-0"



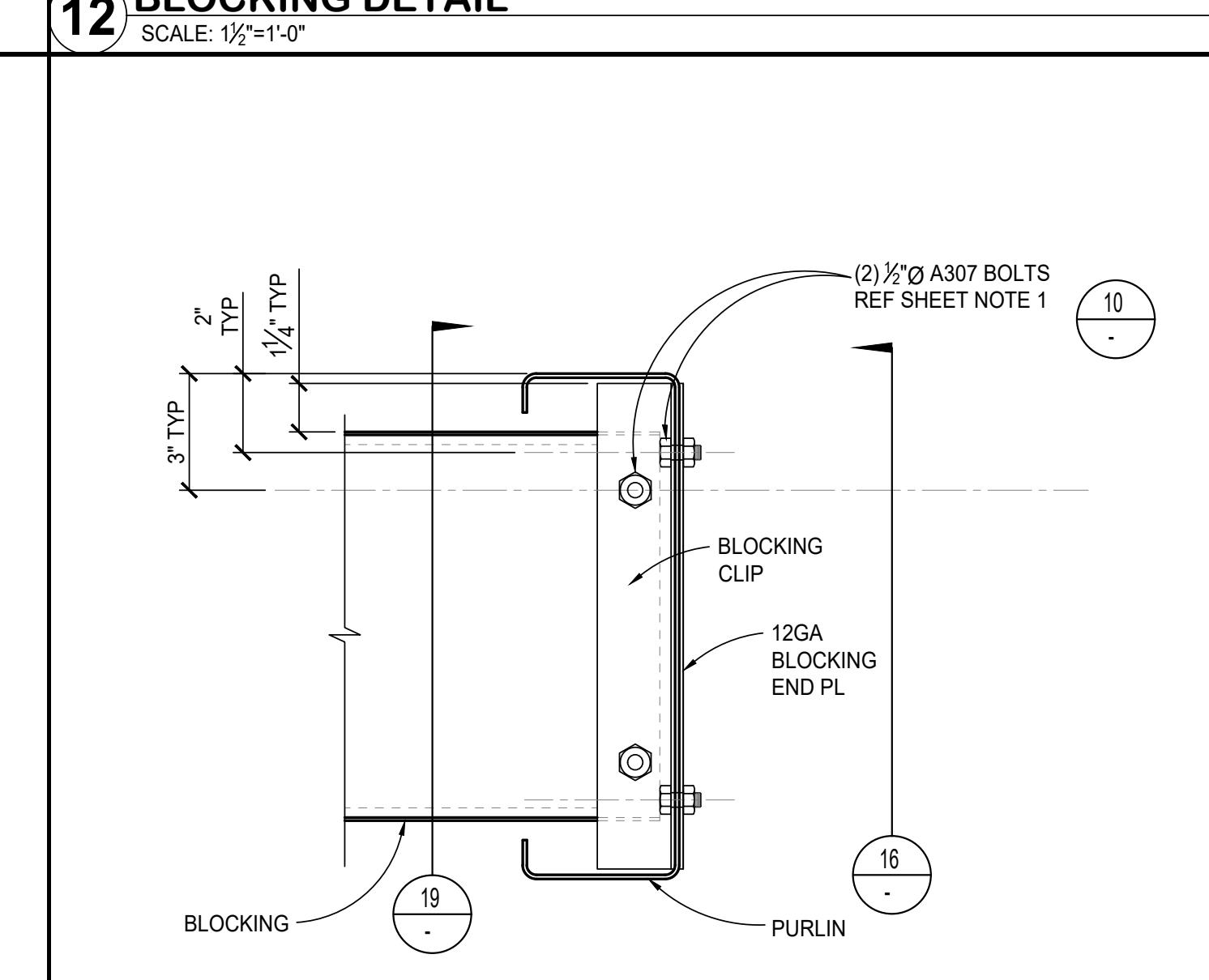
15 FIXED PURLIN SPLICE

SCALE: 3'-0"



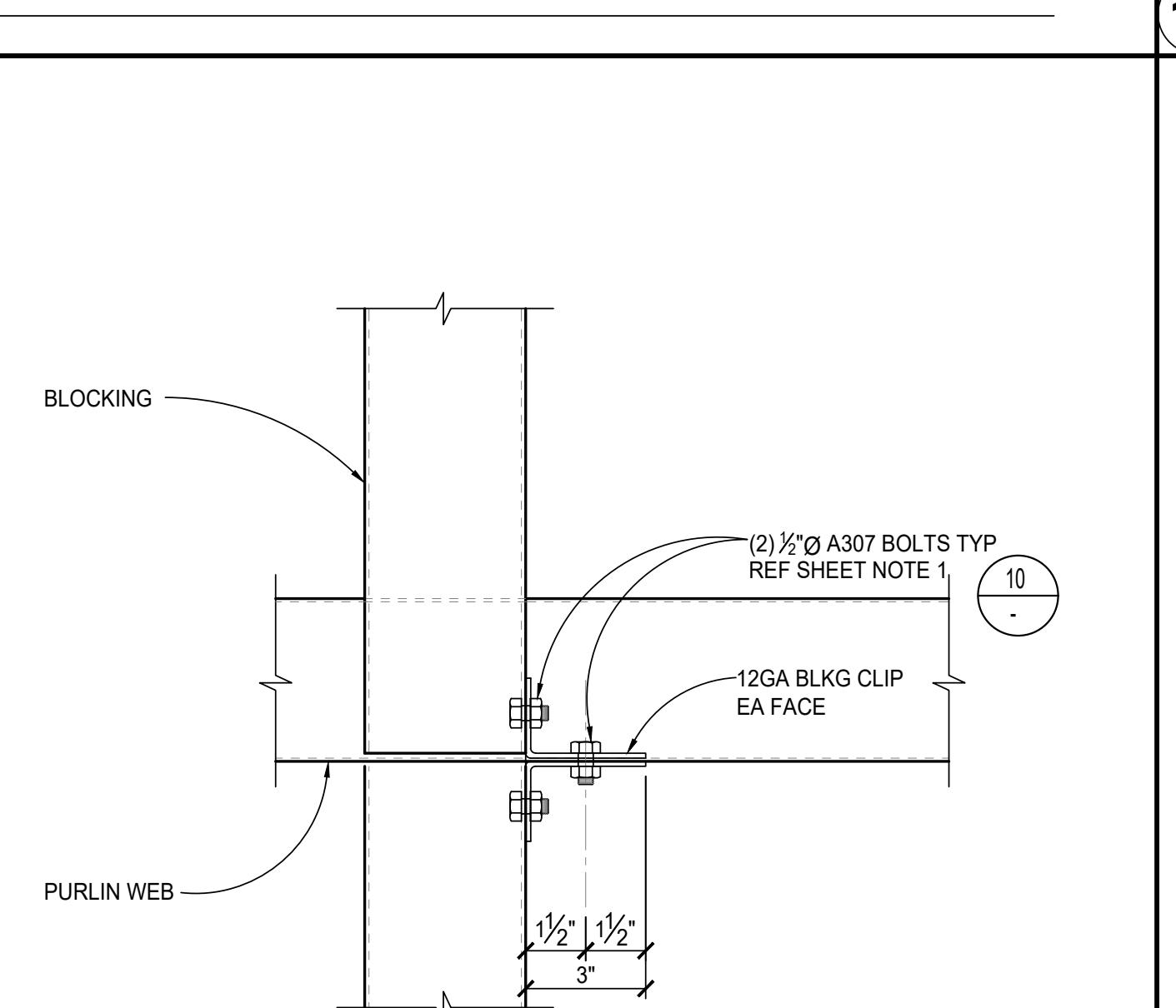
16 END PURLIN BLOCKING CONNECTION

SCALE: 3'-0"



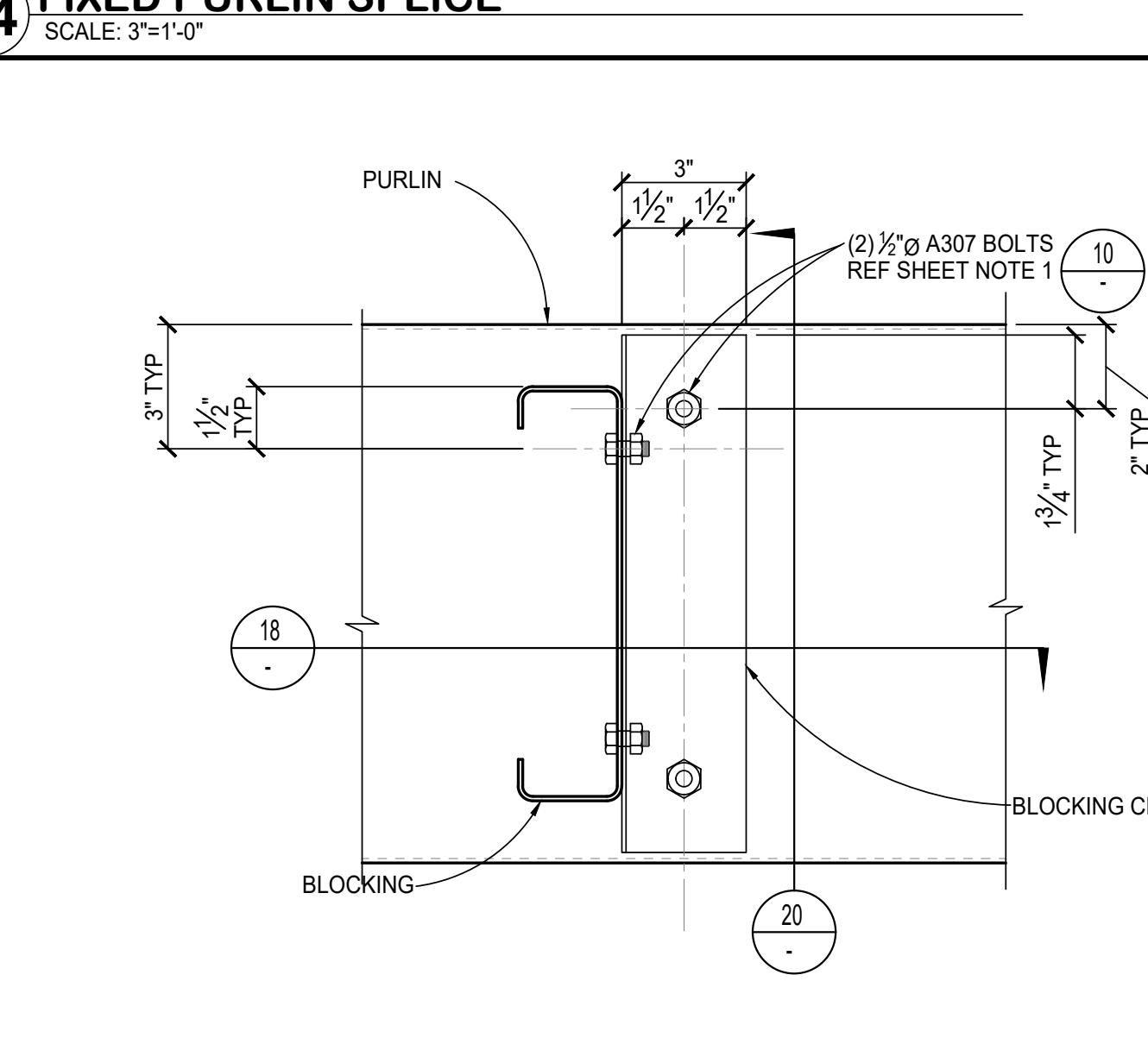
17 END PURLIN BLOCKING CONNECTION

SCALE: 3'-0"



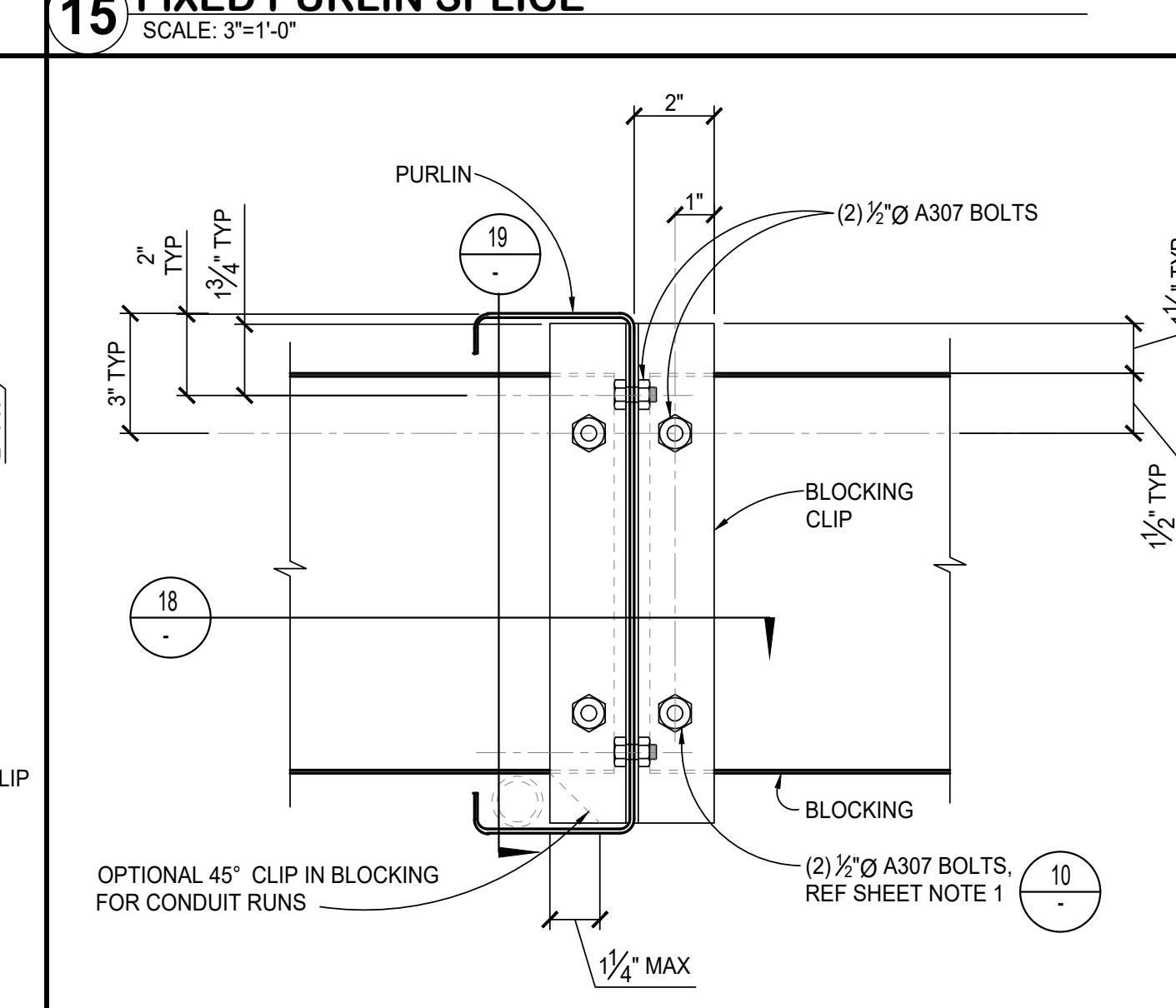
18 TYP BLOCKING CONNECTION

SCALE: 3'-0"



19 TYP BLOCKING CONNECTION

SCALE: 3'-0"



20 TYP BLOCKING CONNECTION

SCALE: 3'-0"

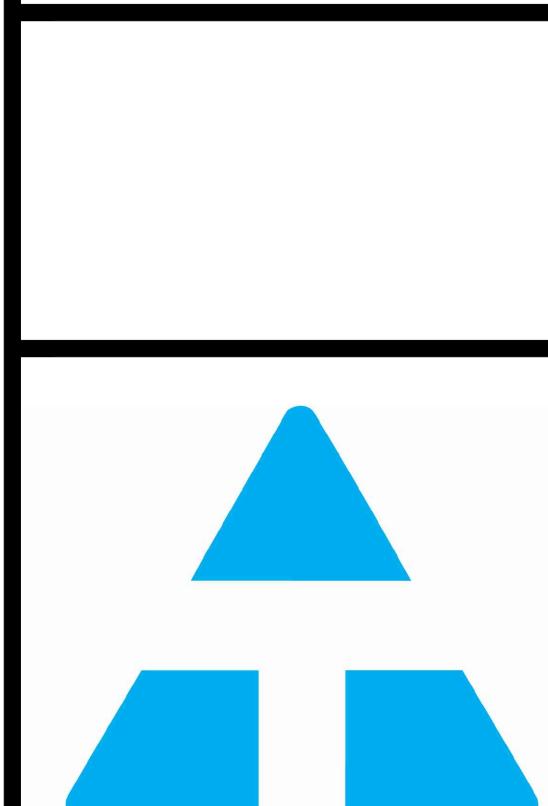
REVISION SCHEDULE	
Design No.	Description
1	FLAT REVIEW SUBMITTAL
2	07/14/2023 JUN 15
3	05/23/2023 JUN 15
4	07/11/2023 JUN 15
5	07/21/2023 JUN 15

DATE	07/21/2023
DRAWN BY	JM

ORIGINAL SHEET SIZE 30 x 42
IF BAR IS NOT TO SCALE - DRAWING IS NOT TO SCALE

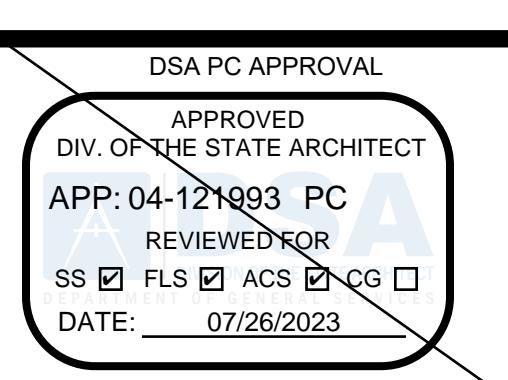
SHEET

S501

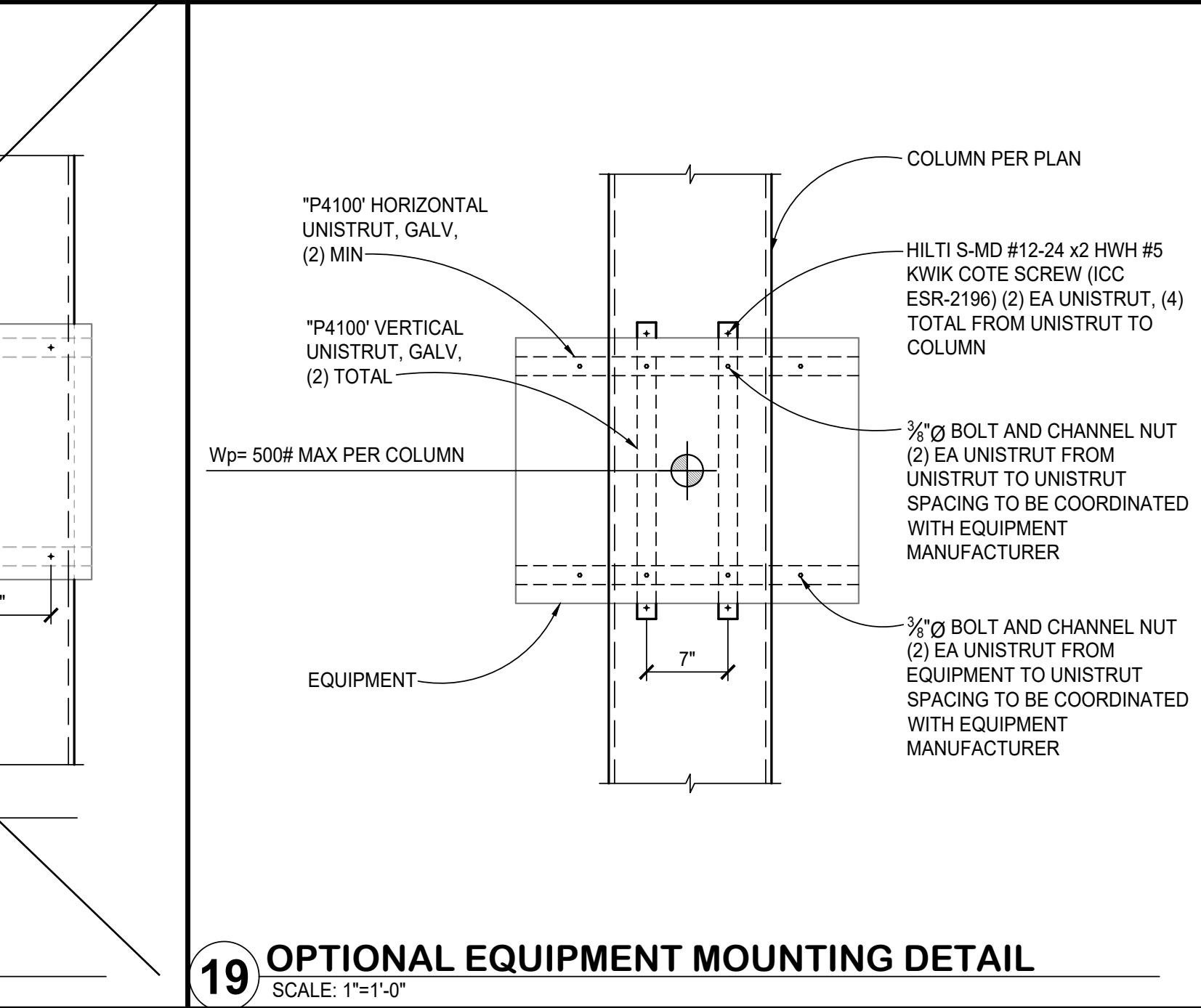
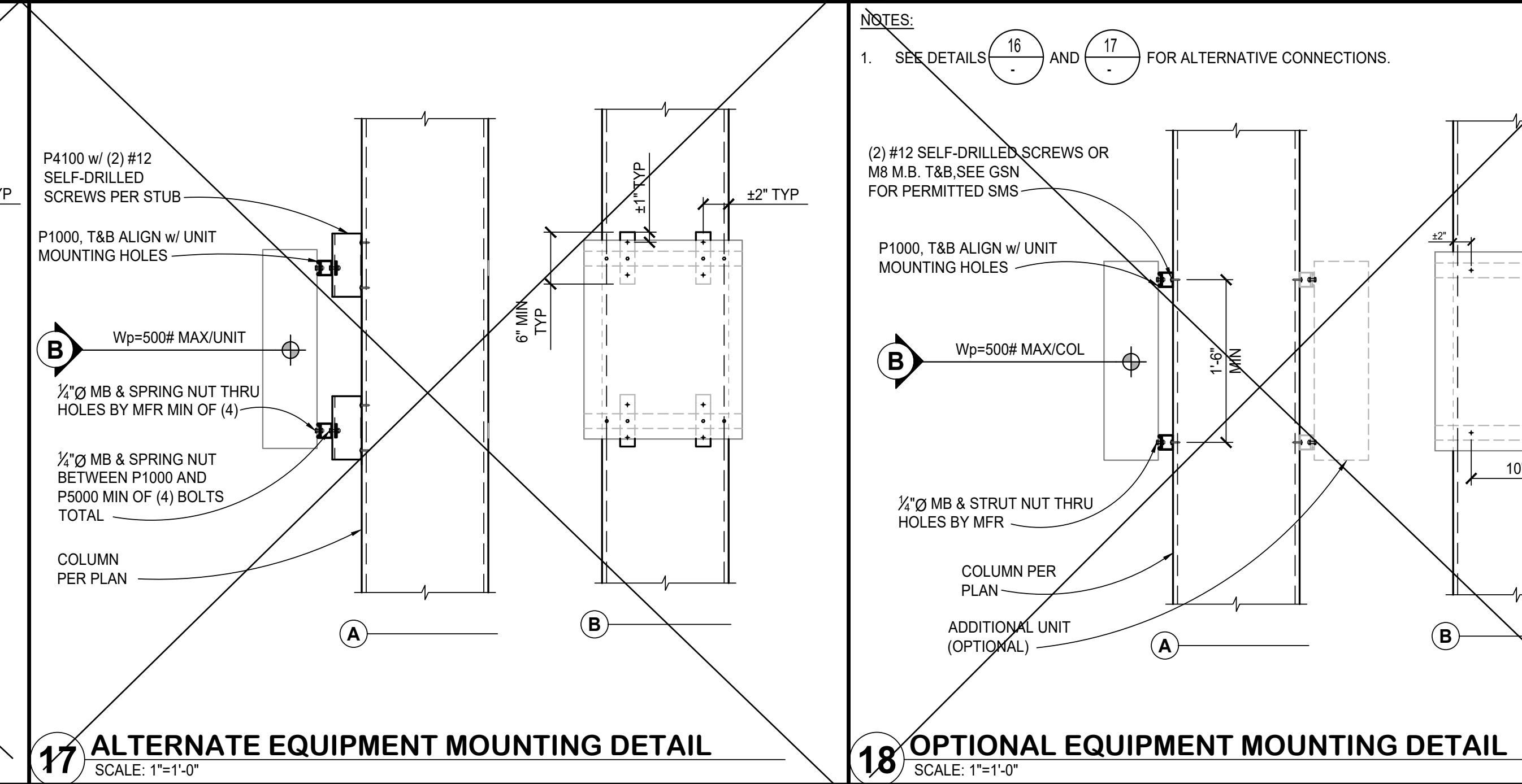
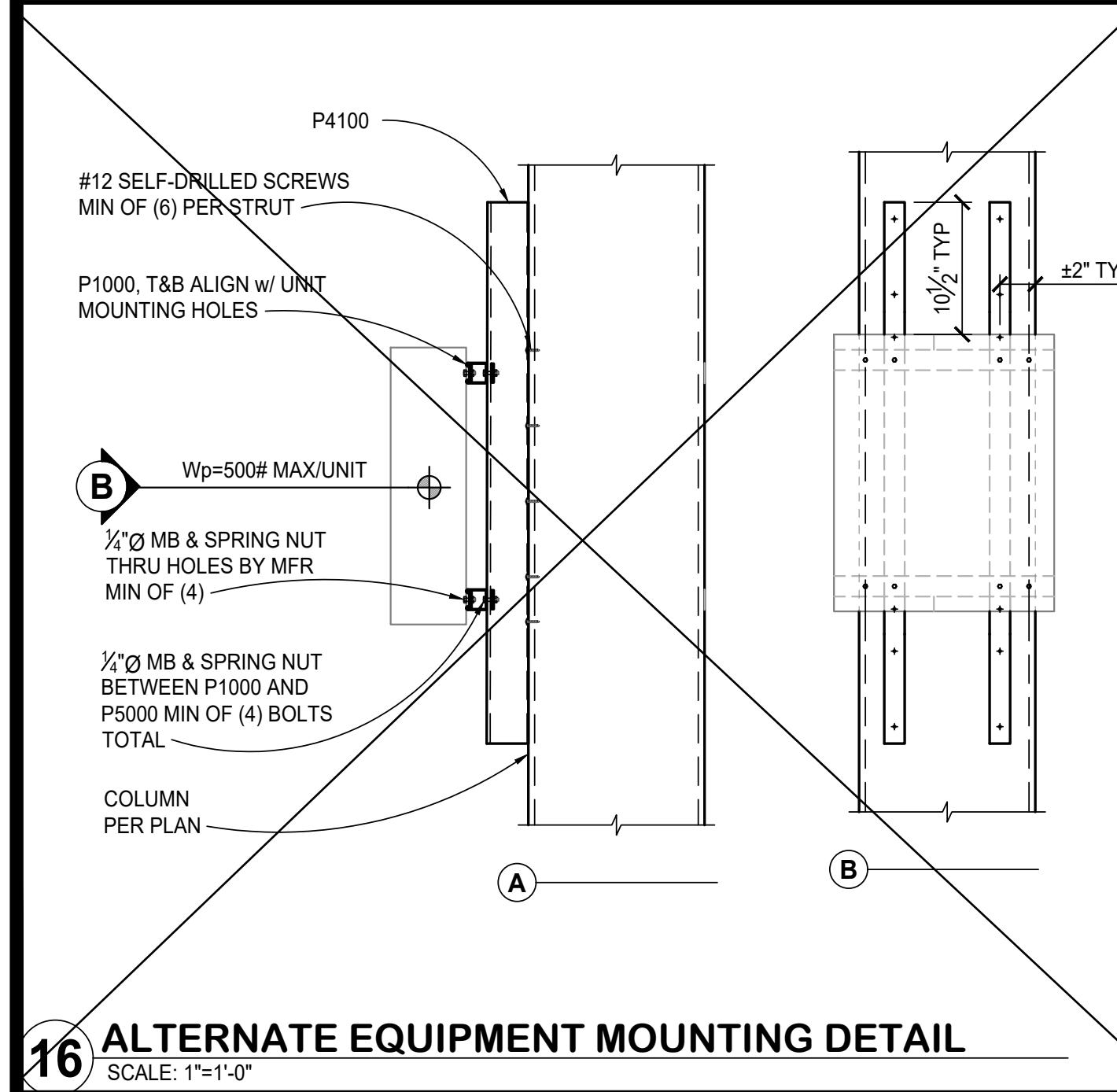
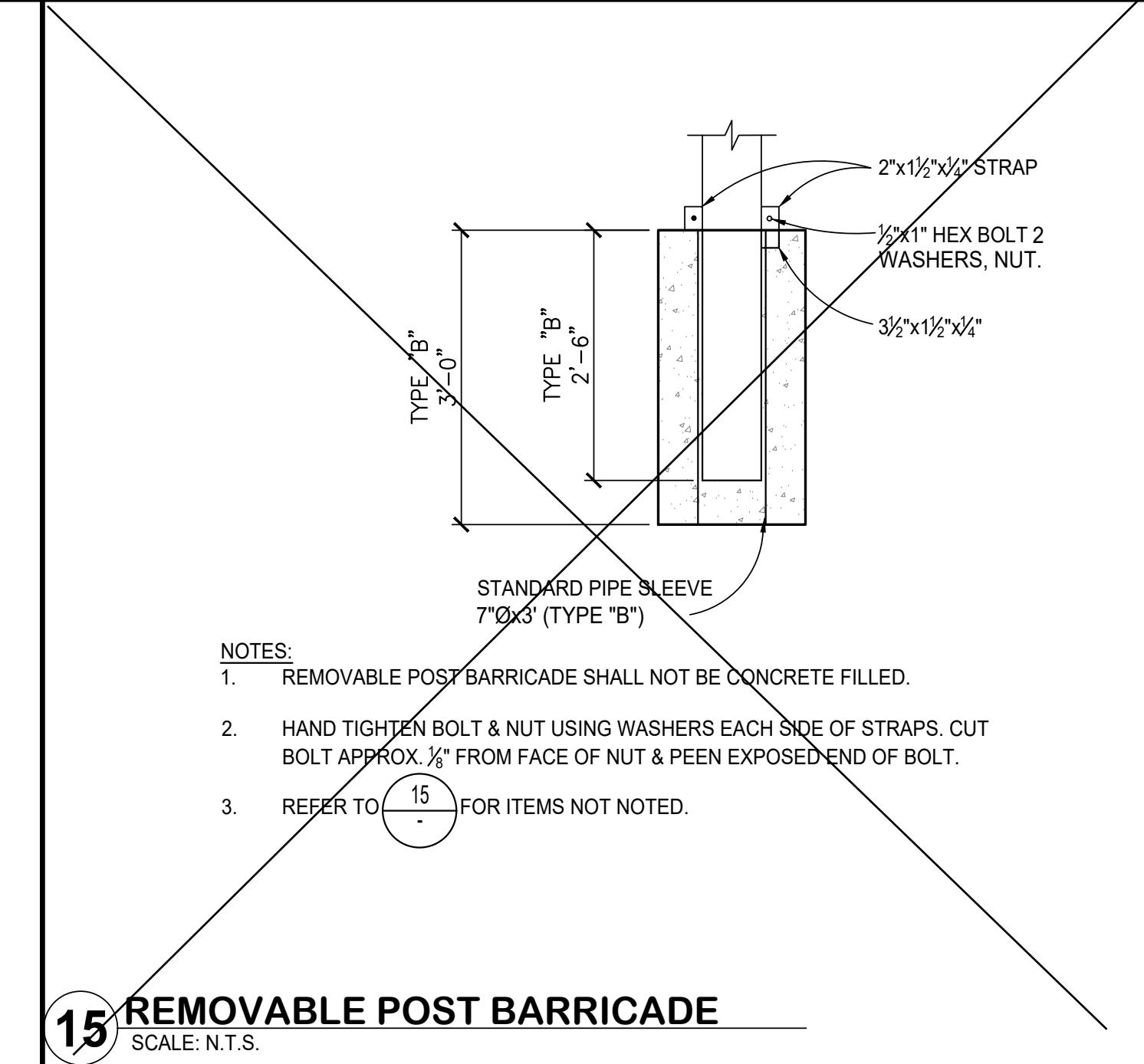
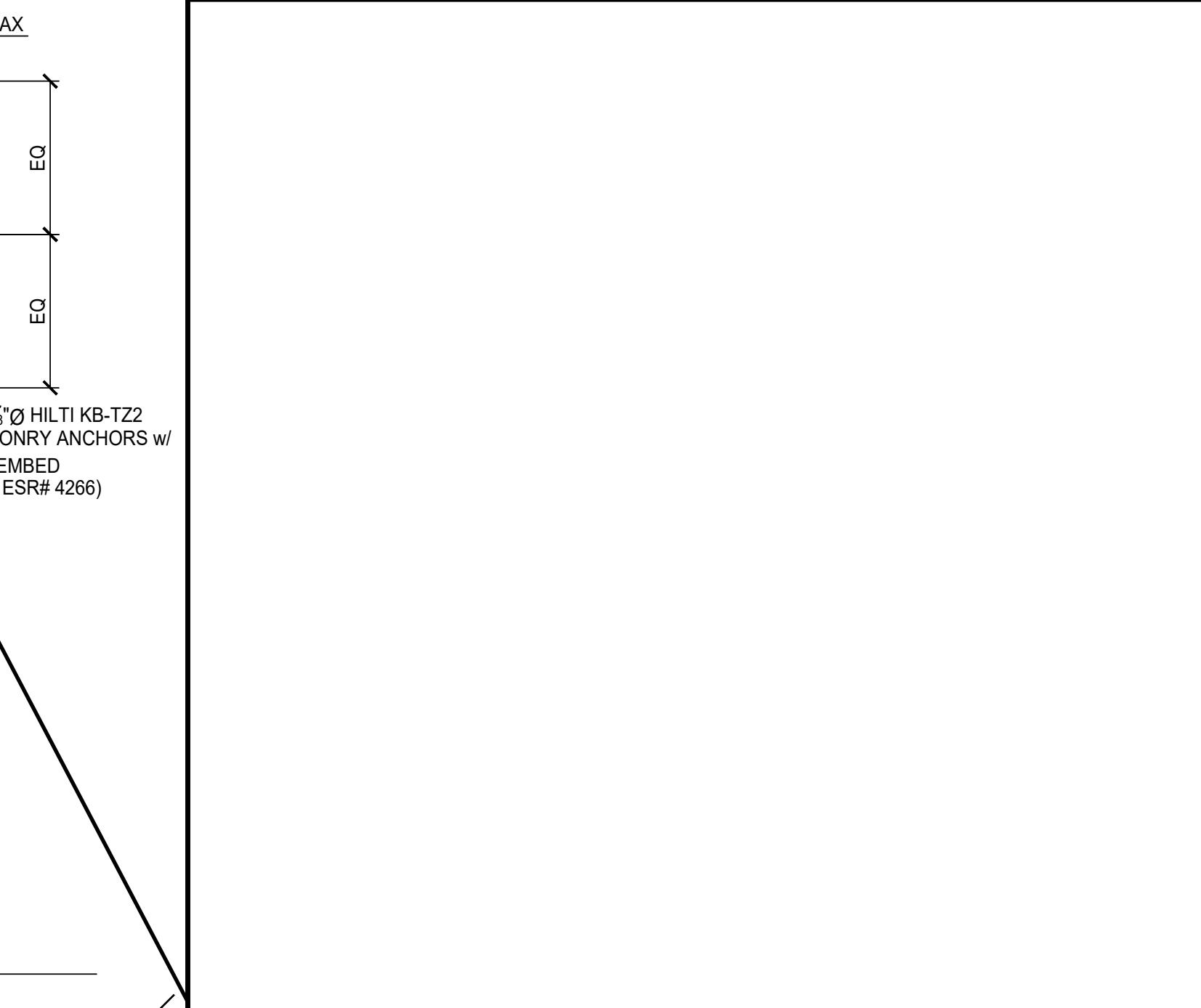
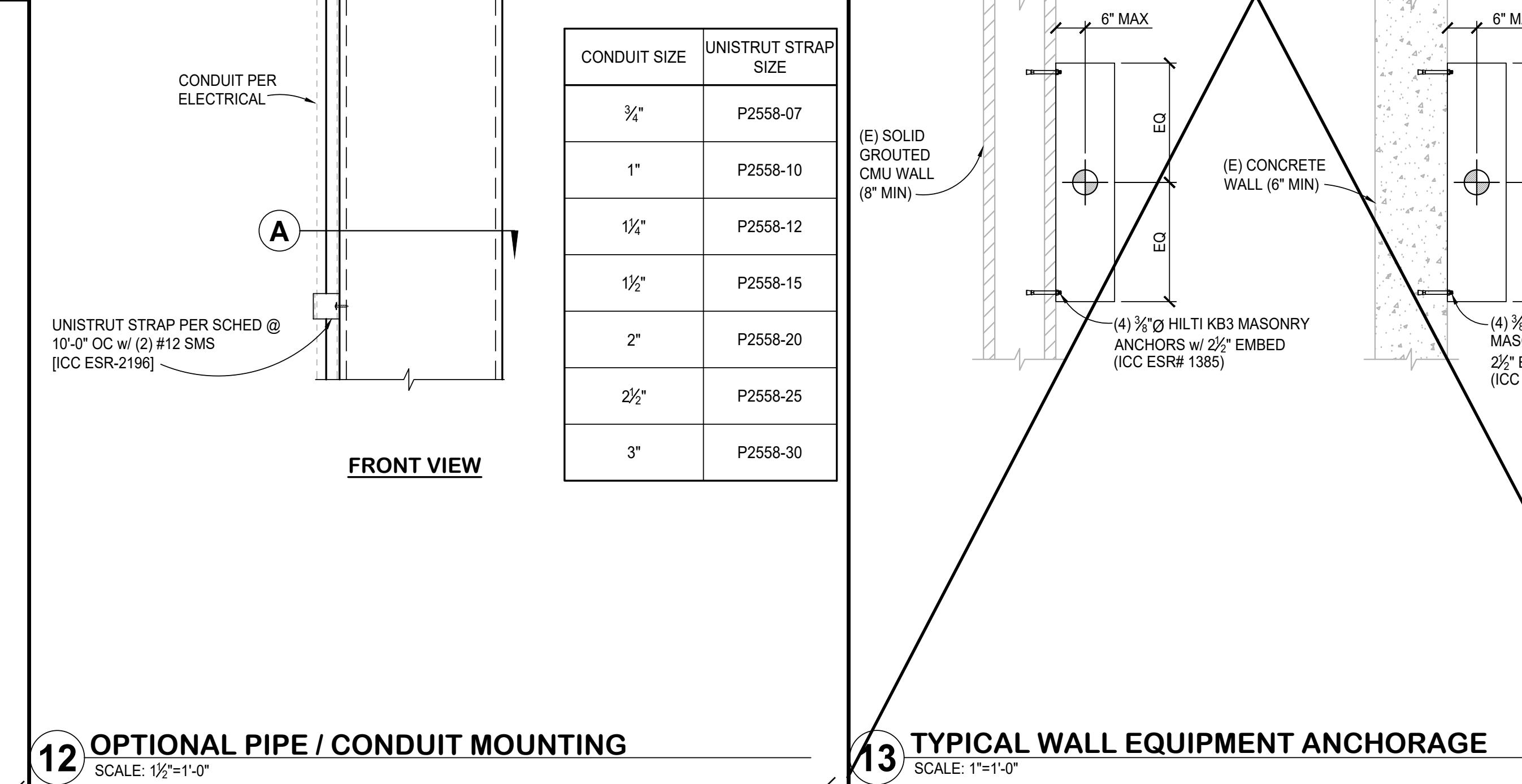
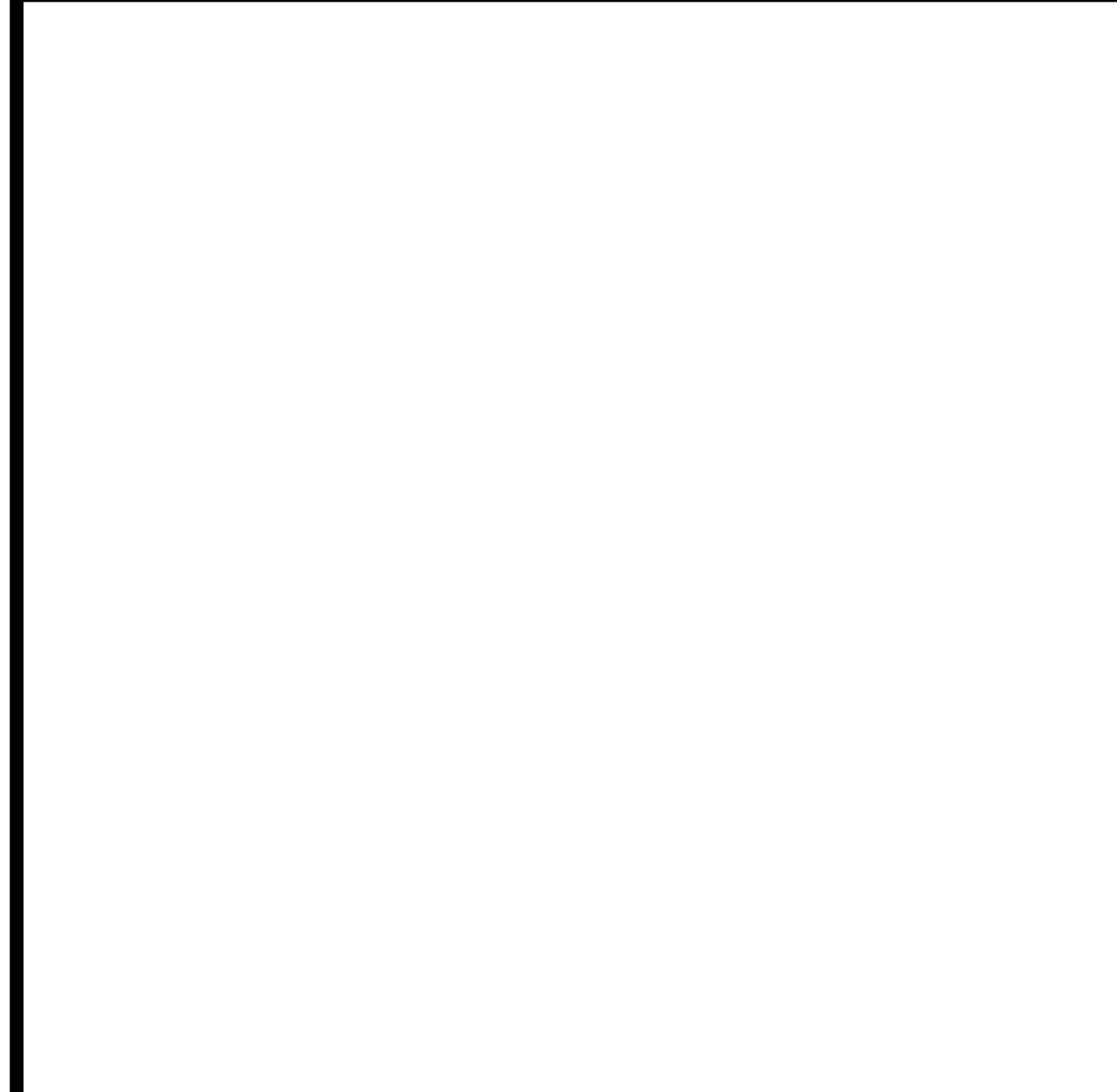
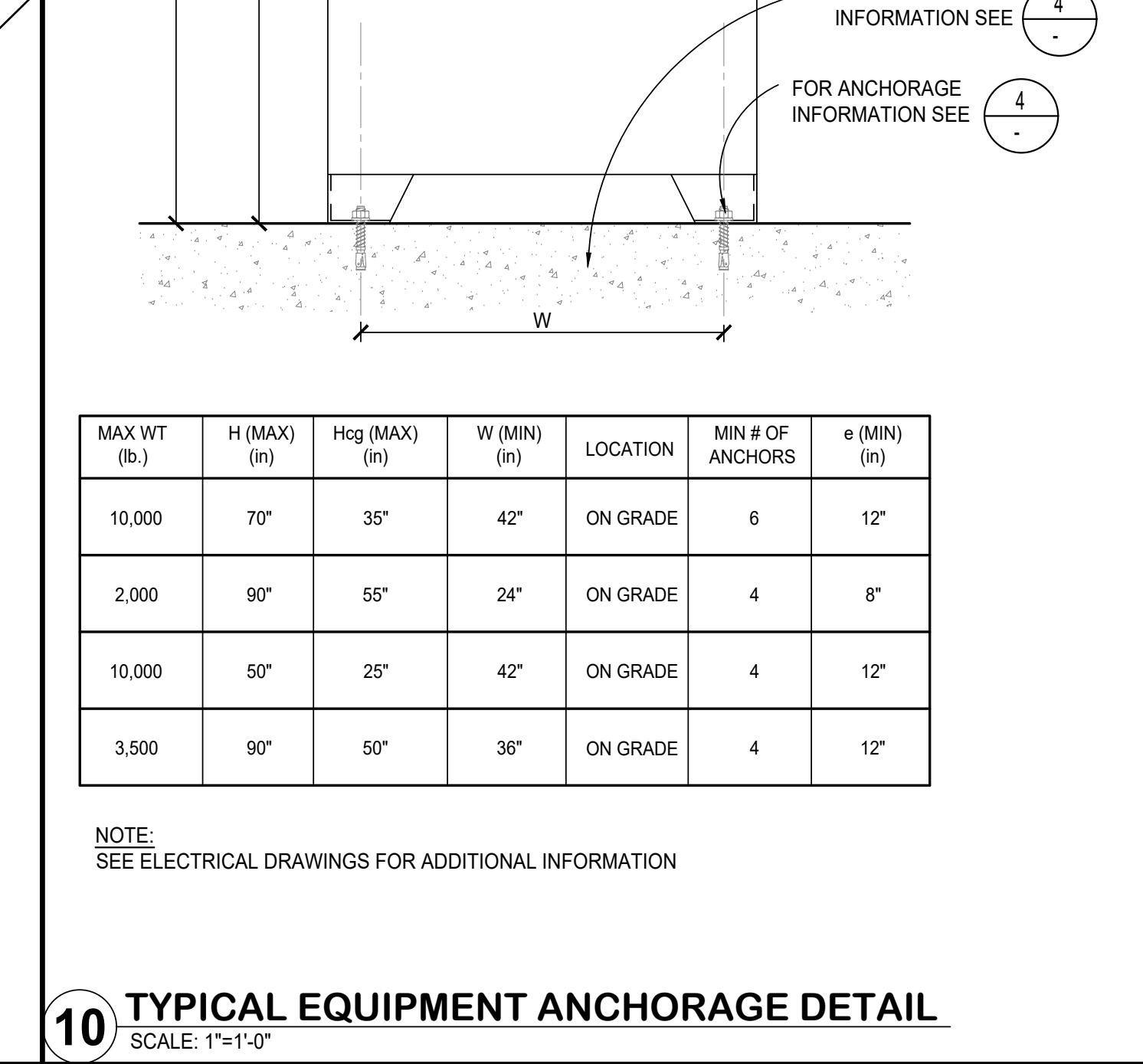
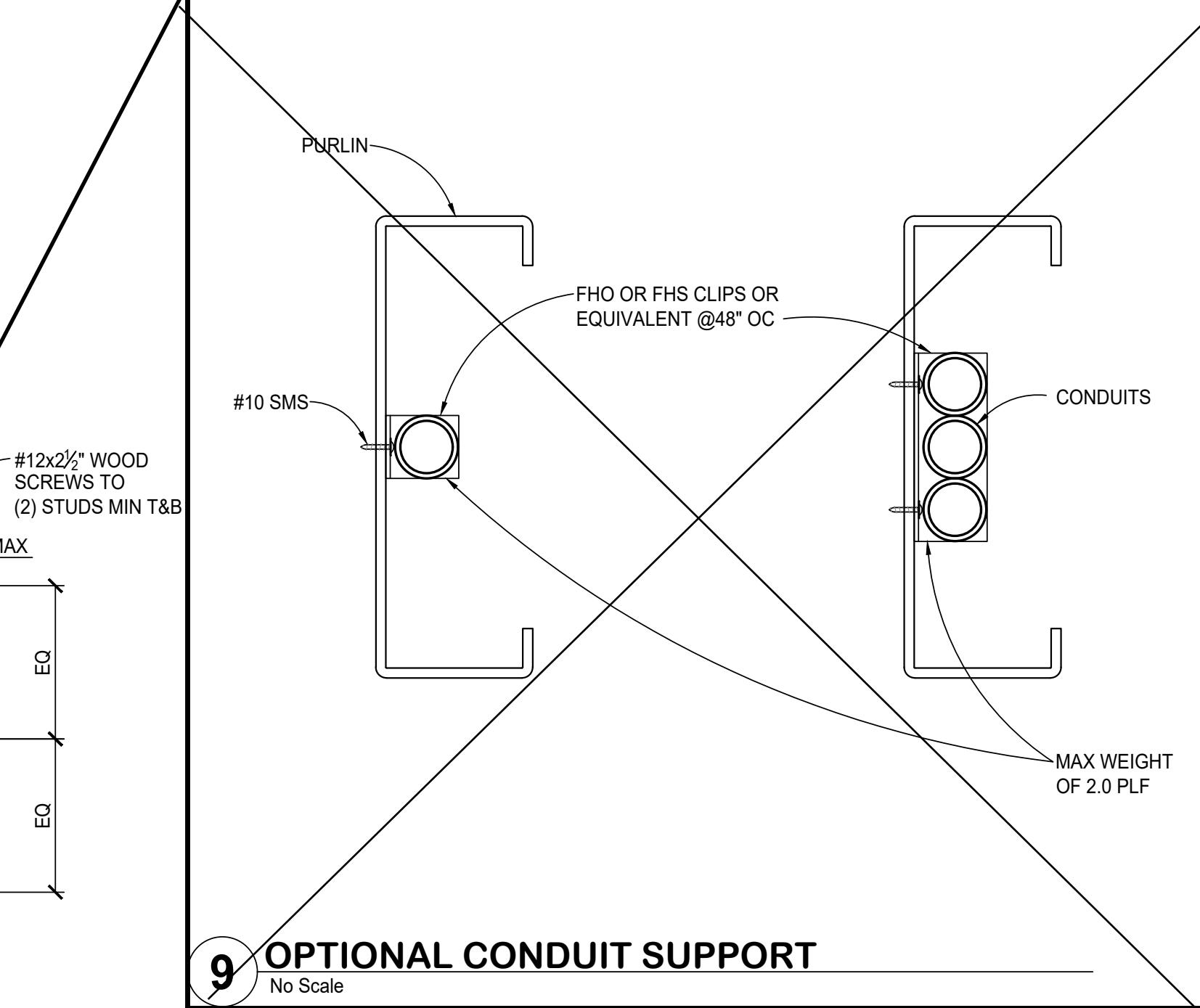
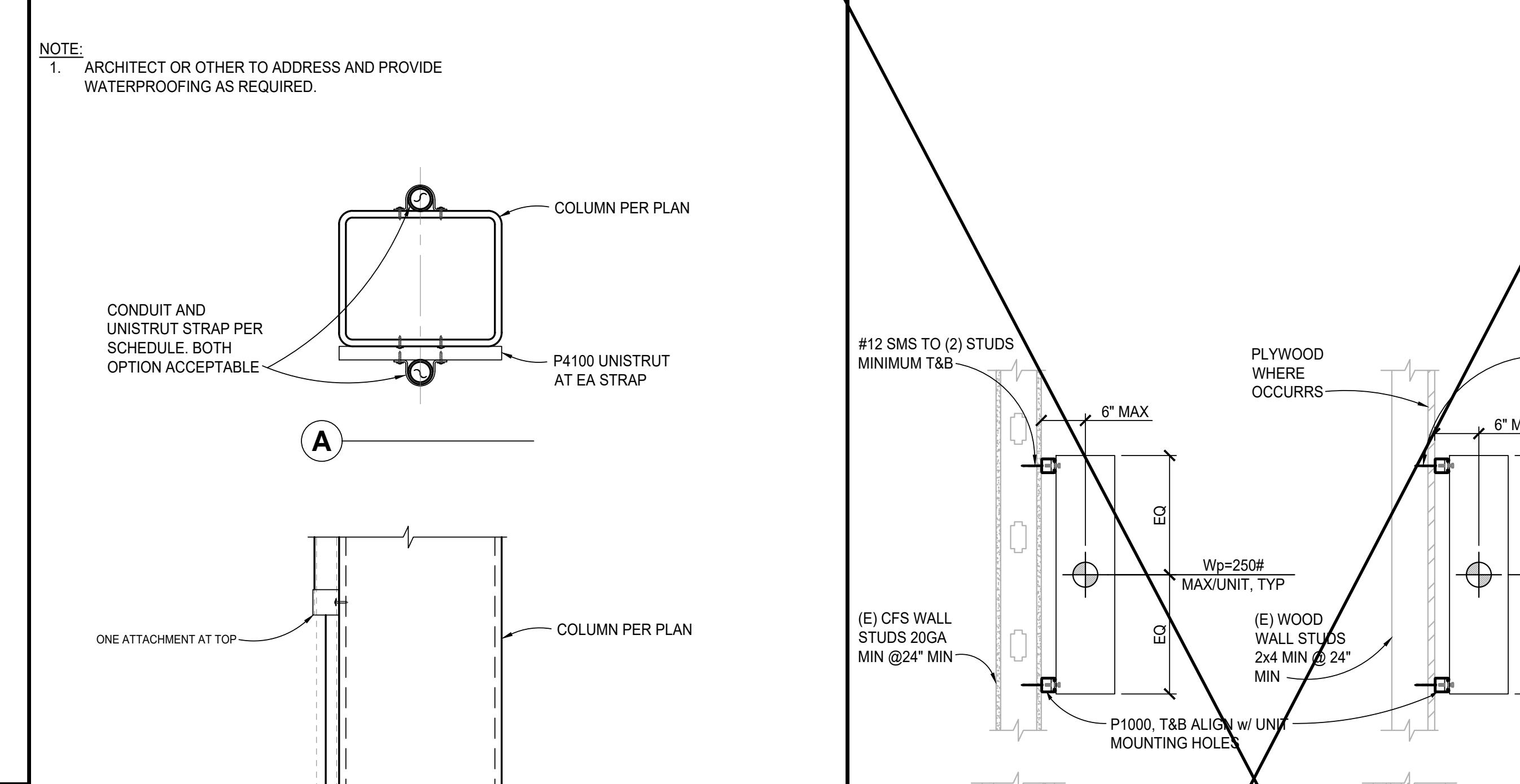
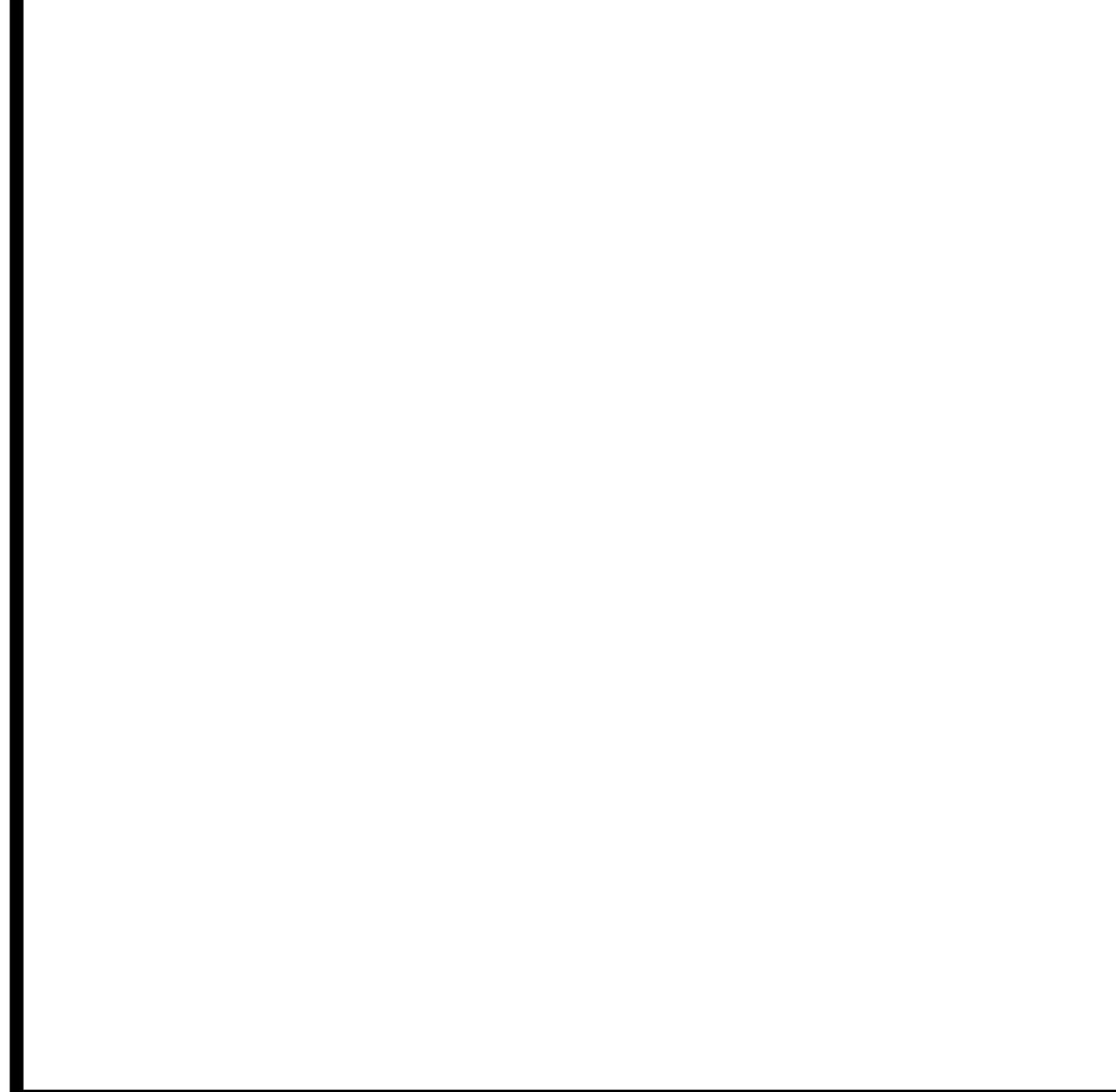
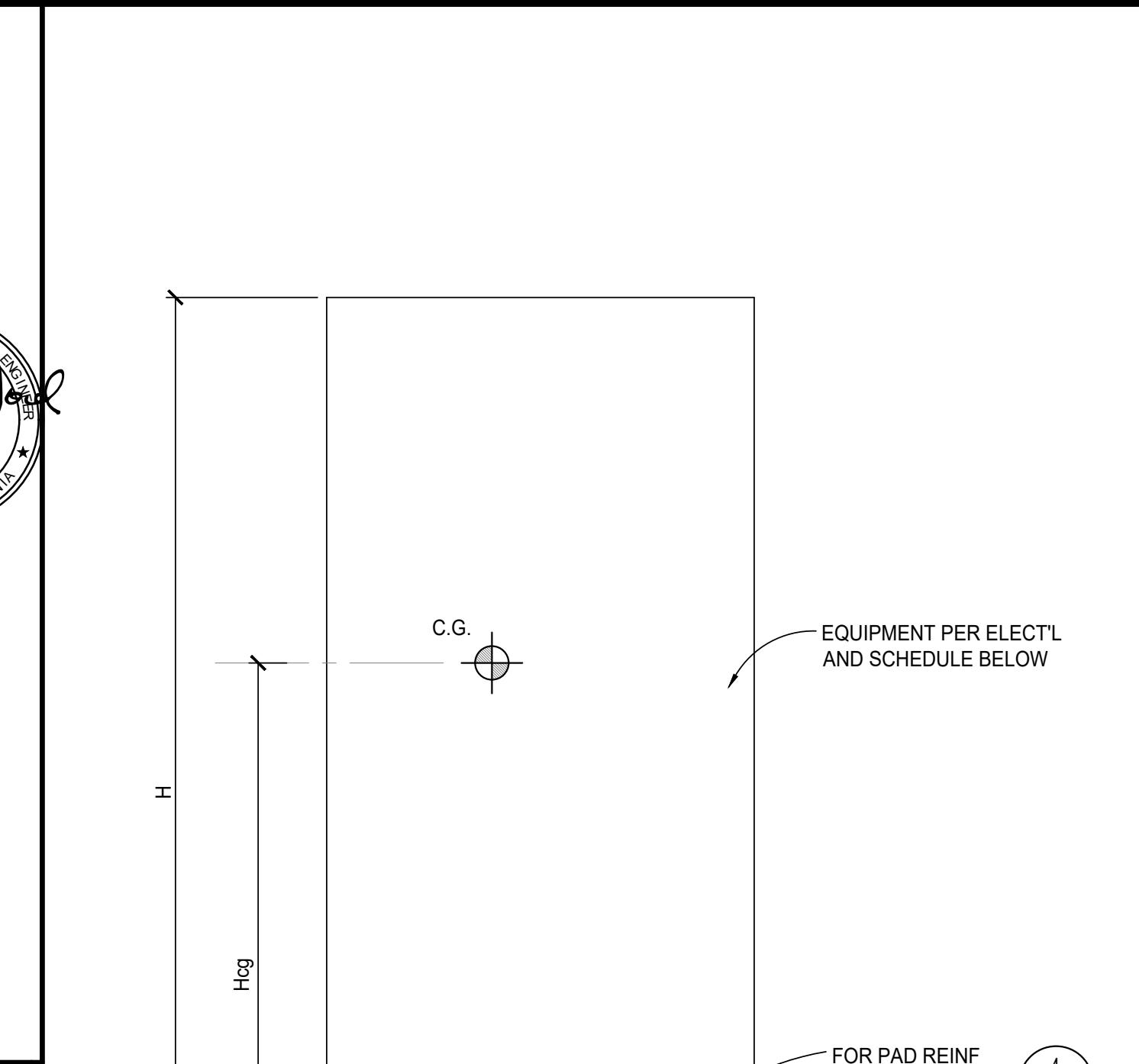
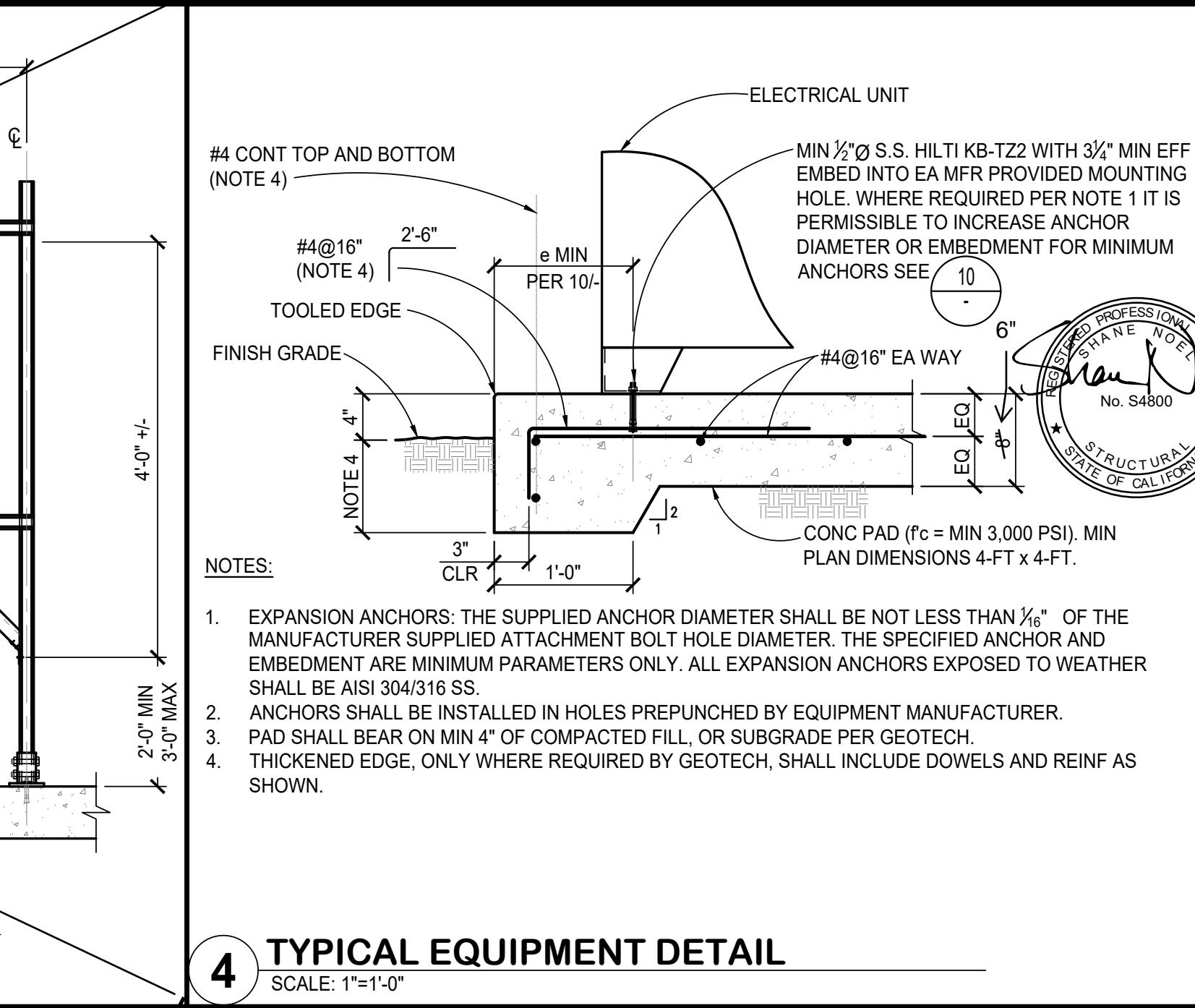
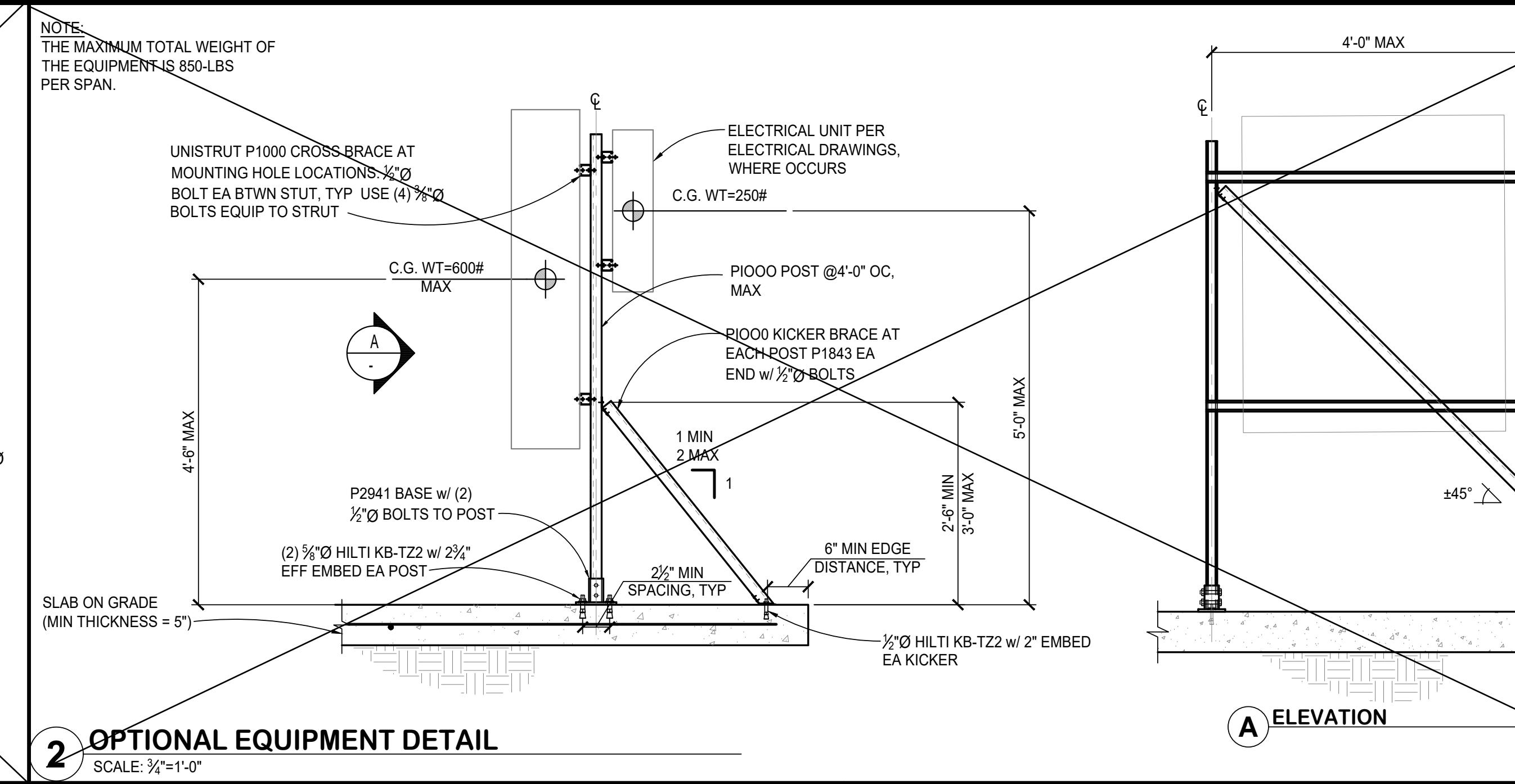
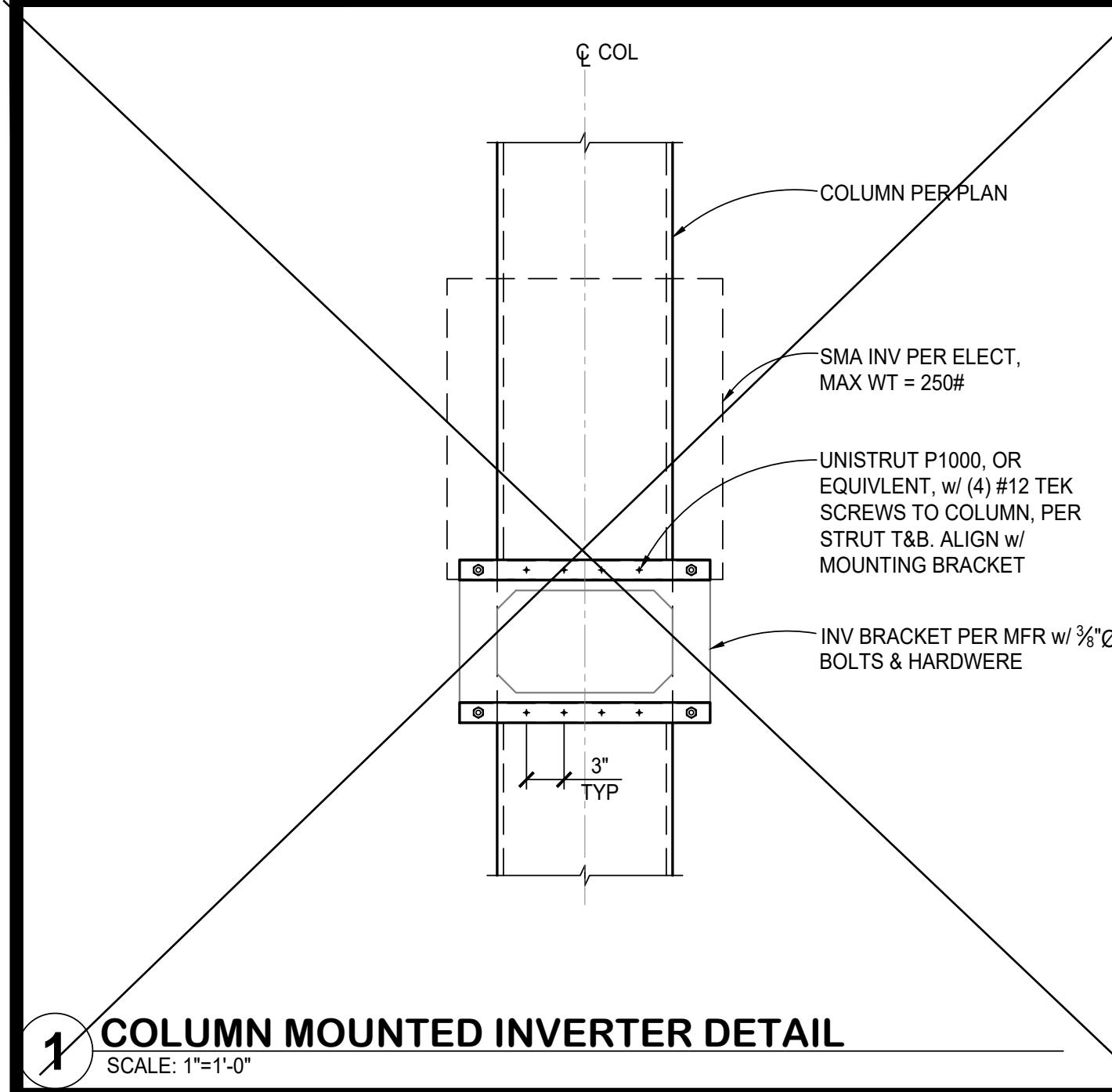


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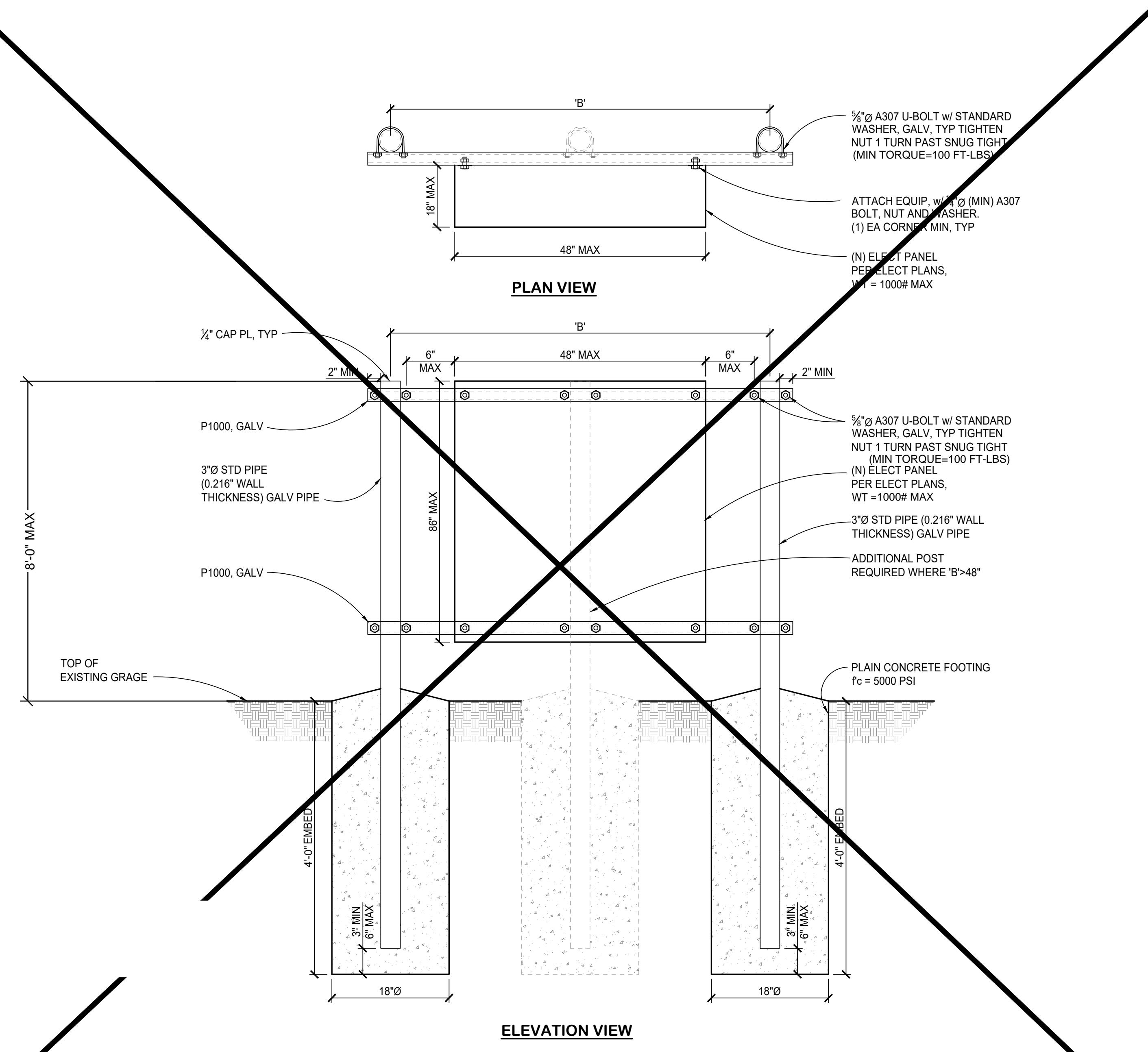


TEICHERT / kpff
DSA - PC PV STRUCTURE SYSTEM
EQUIPMENT ANCHORAGE AND
BARRICADE DETAILS



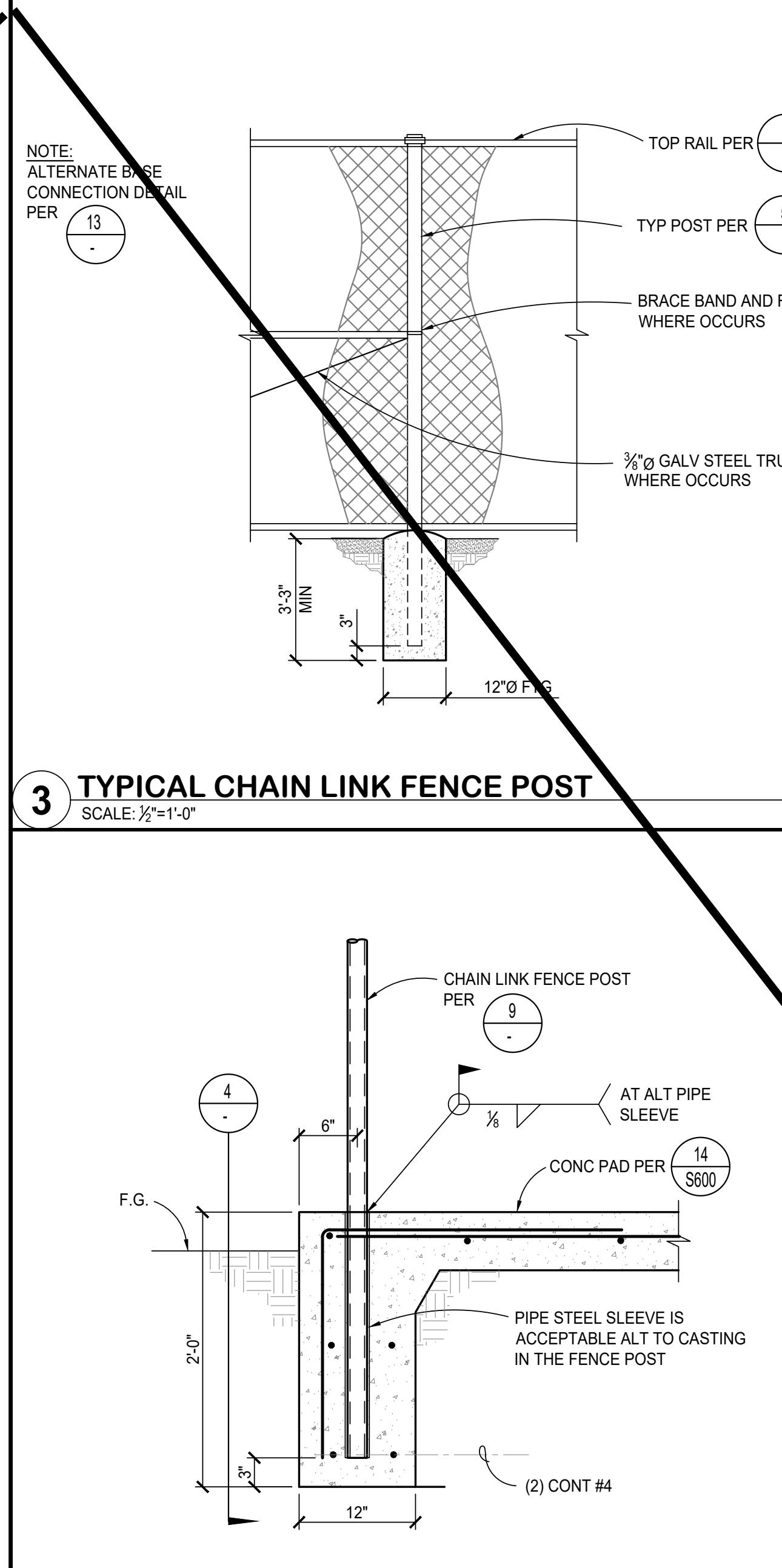
REVISION SCHEDULE	
Design No.	Description
1	CB
2	FLAR REVIEW SUBMITTAL
3	CB
4	JW
5	SN
6	CB
7	JW
8	SN
9	CB
10	JW
11	SN
12	CB
13	JW
14	SN
15	CB
16	JW
17	SN
18	CB
19	JW
20	SN

S600



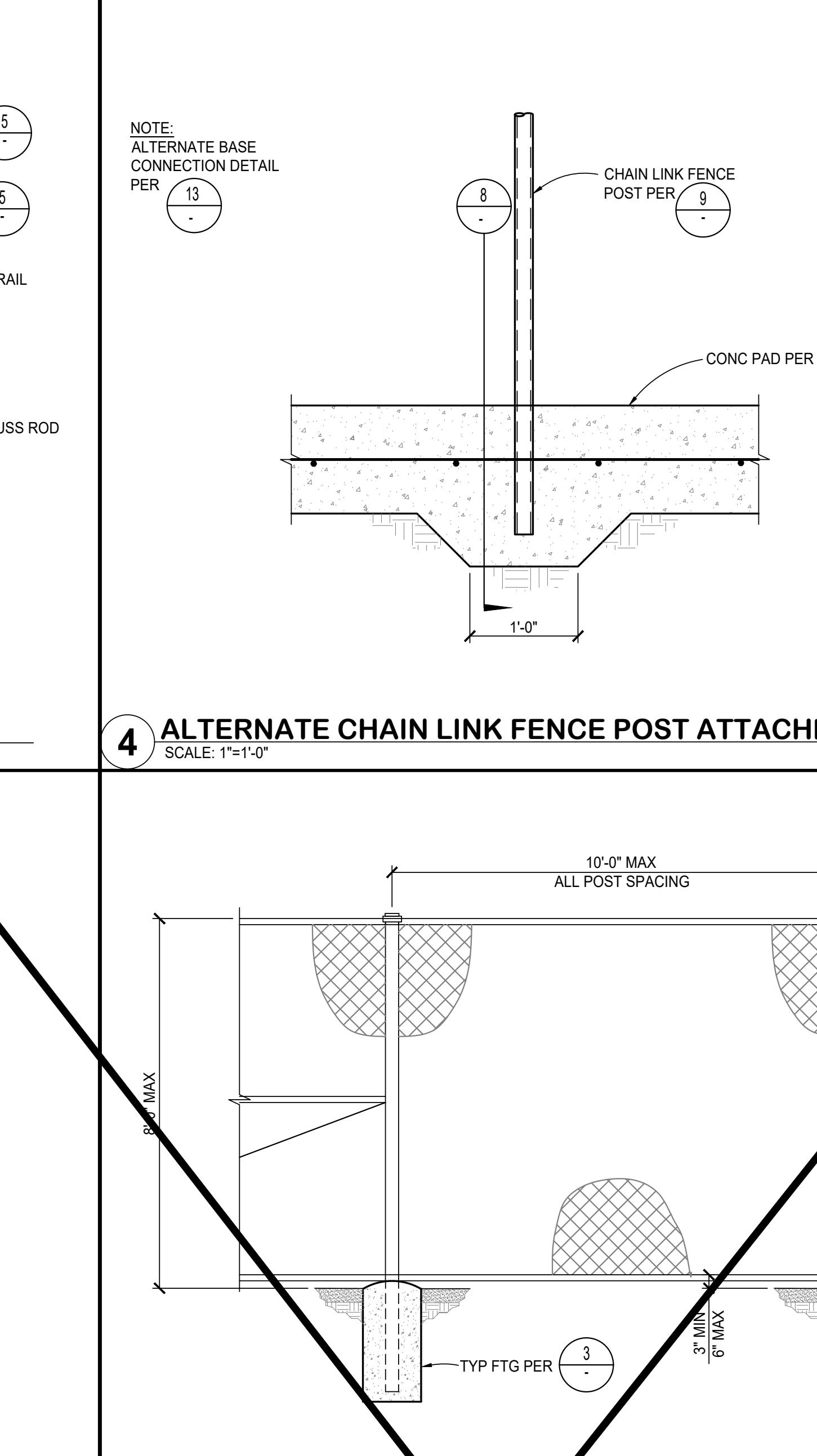
6 PIPE MOUNTED EQUIPMENT

SCALE: 1'=1'-0"



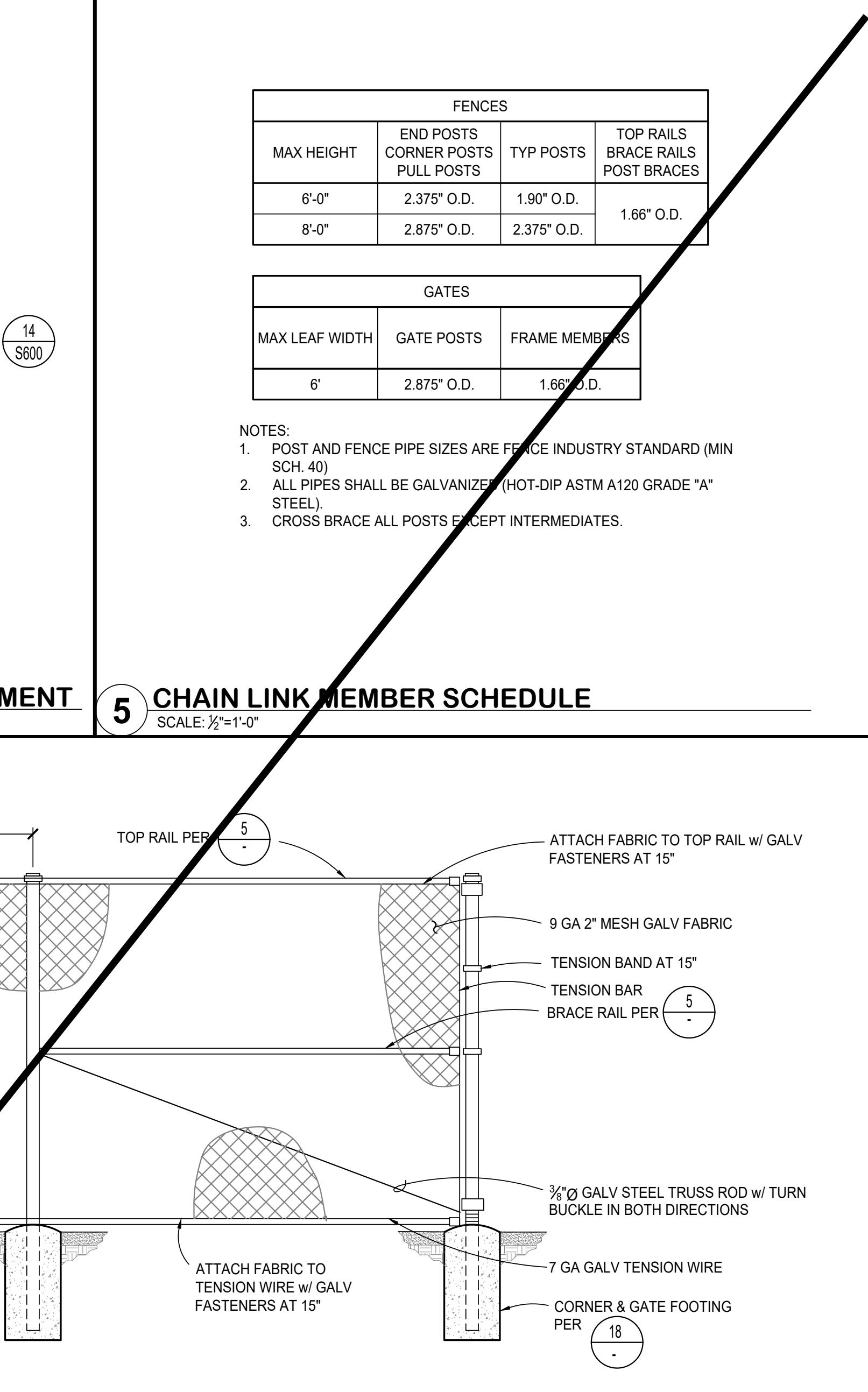
3 TYPICAL CHAIN LINK FENCE POST

SCALE: 1/2'=1'-0"



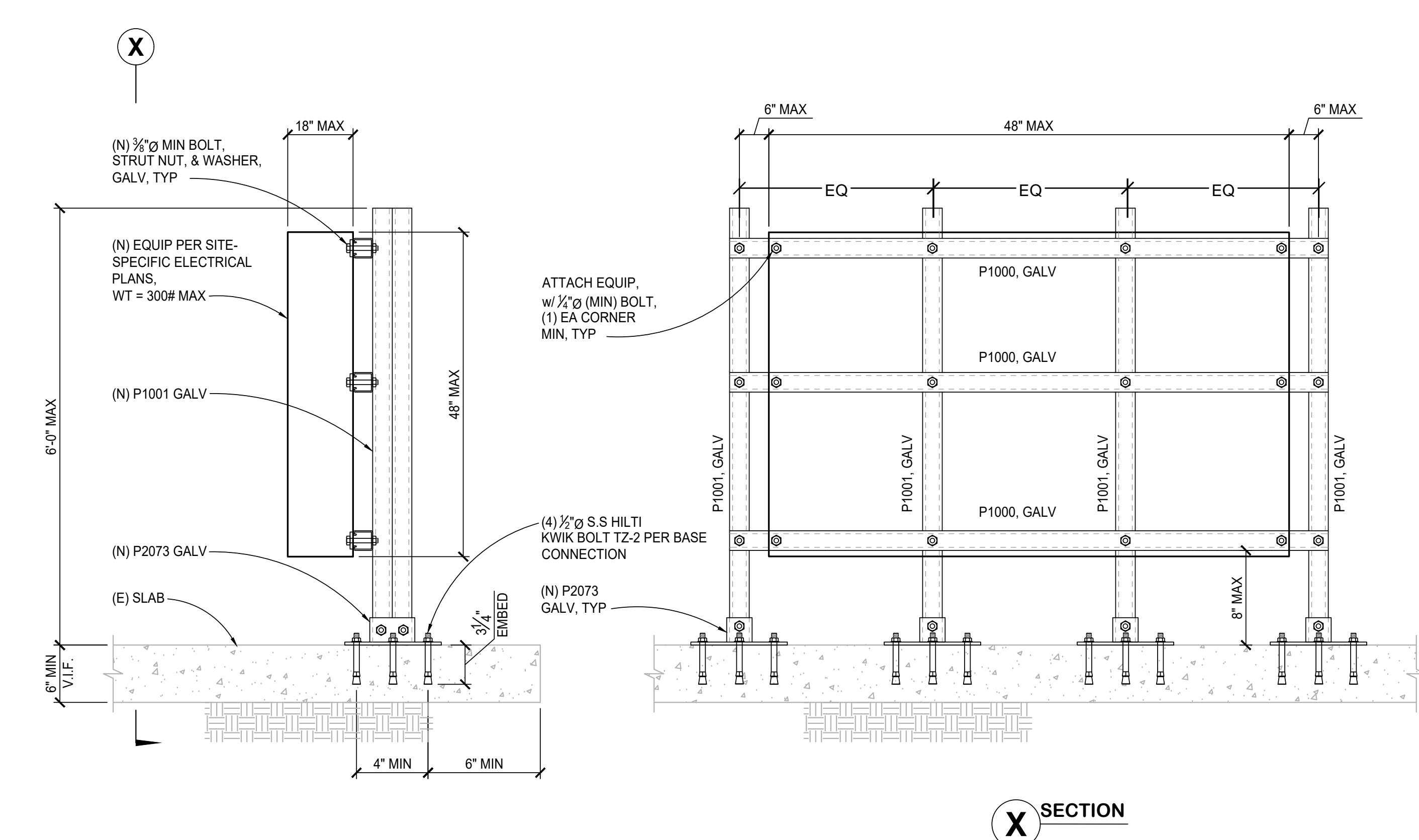
4 ALTERNATE CHAIN LINK FENCE POST ATTACHMENT

SCALE: 1'=1'-0"



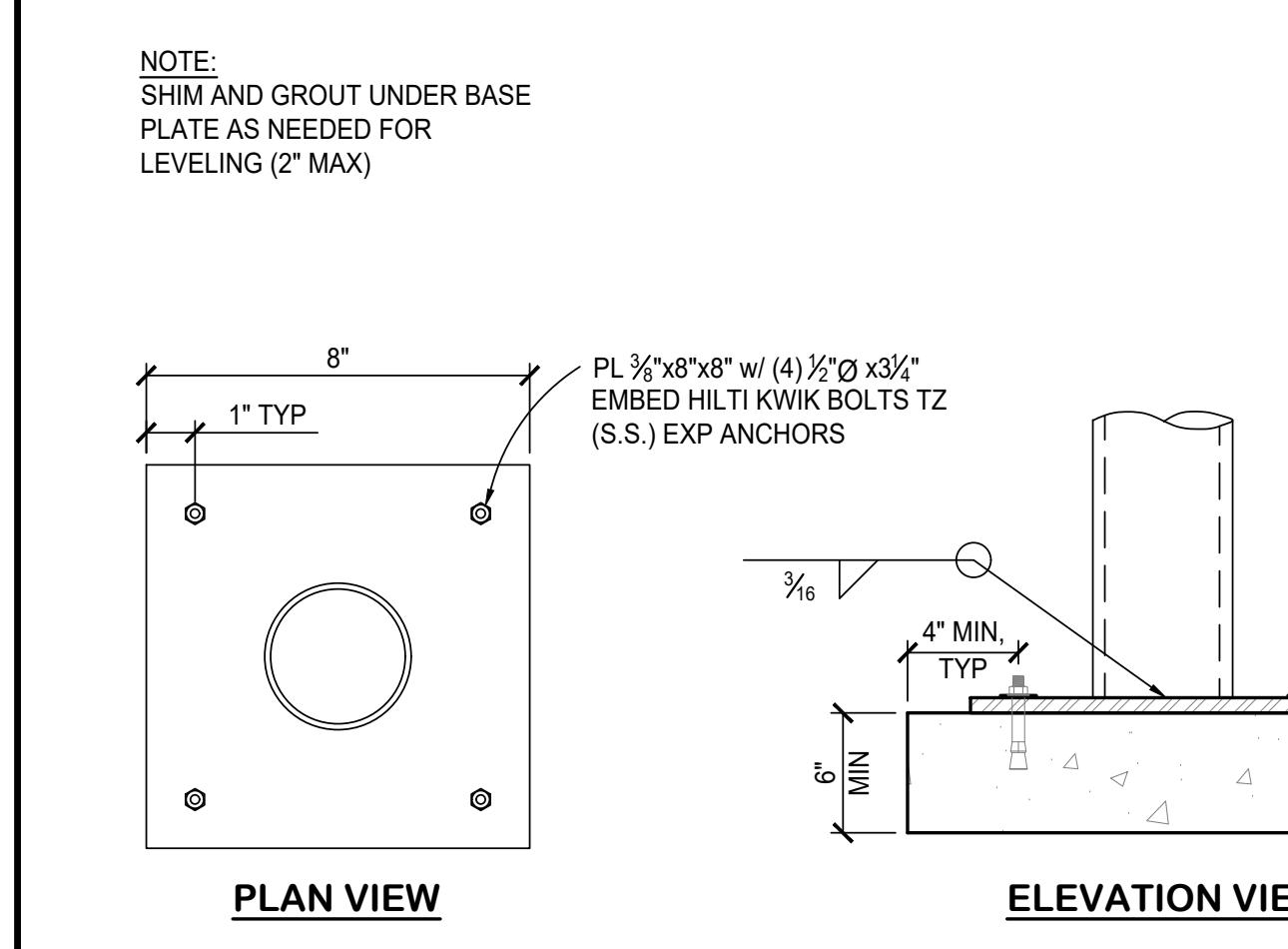
5 CHAIN LINK MEMBER SCHEDULE

SCALE: 1/2'=1'-0"



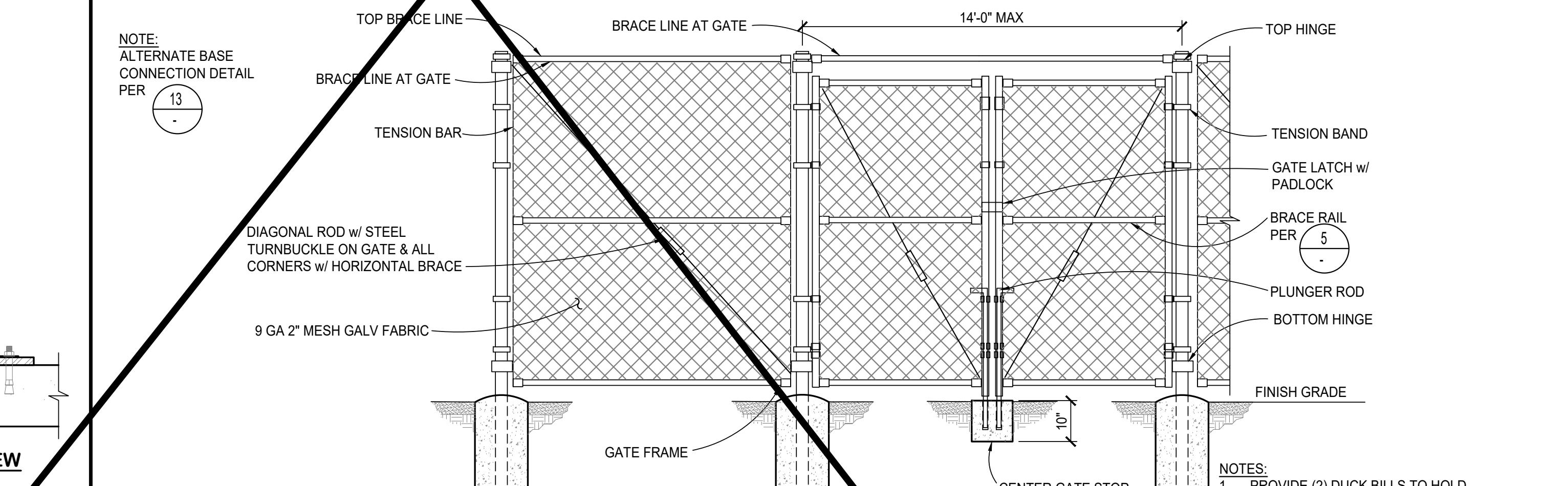
16 OPTIONAL EQUIPMENT DETAIL (FREESTANDING)

SCALE: 1/2'=1'-0"



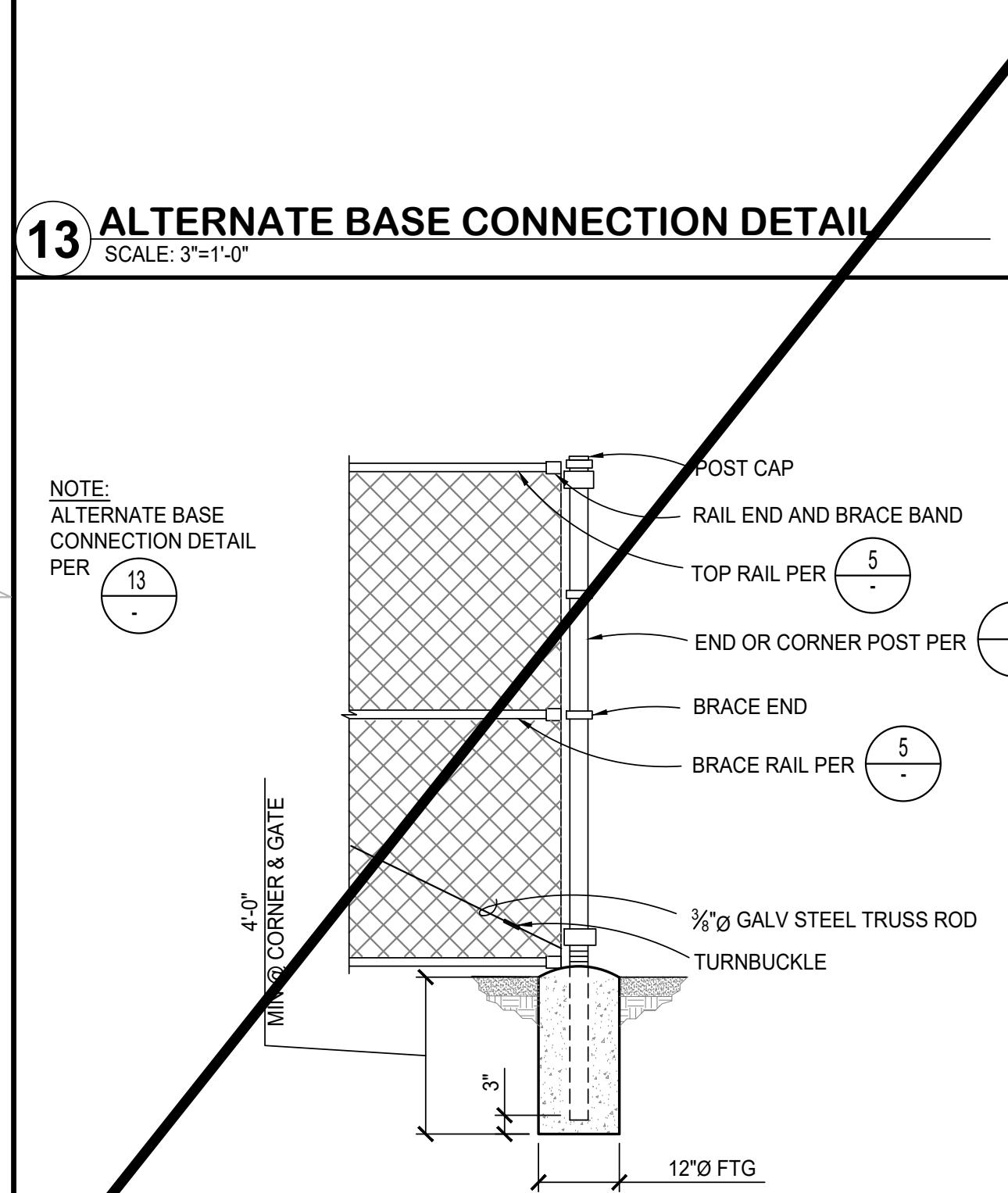
8 ALTERNATE CHAIN LINK FENCE POST ATTACHMENT

SCALE: 1'=1'-0"



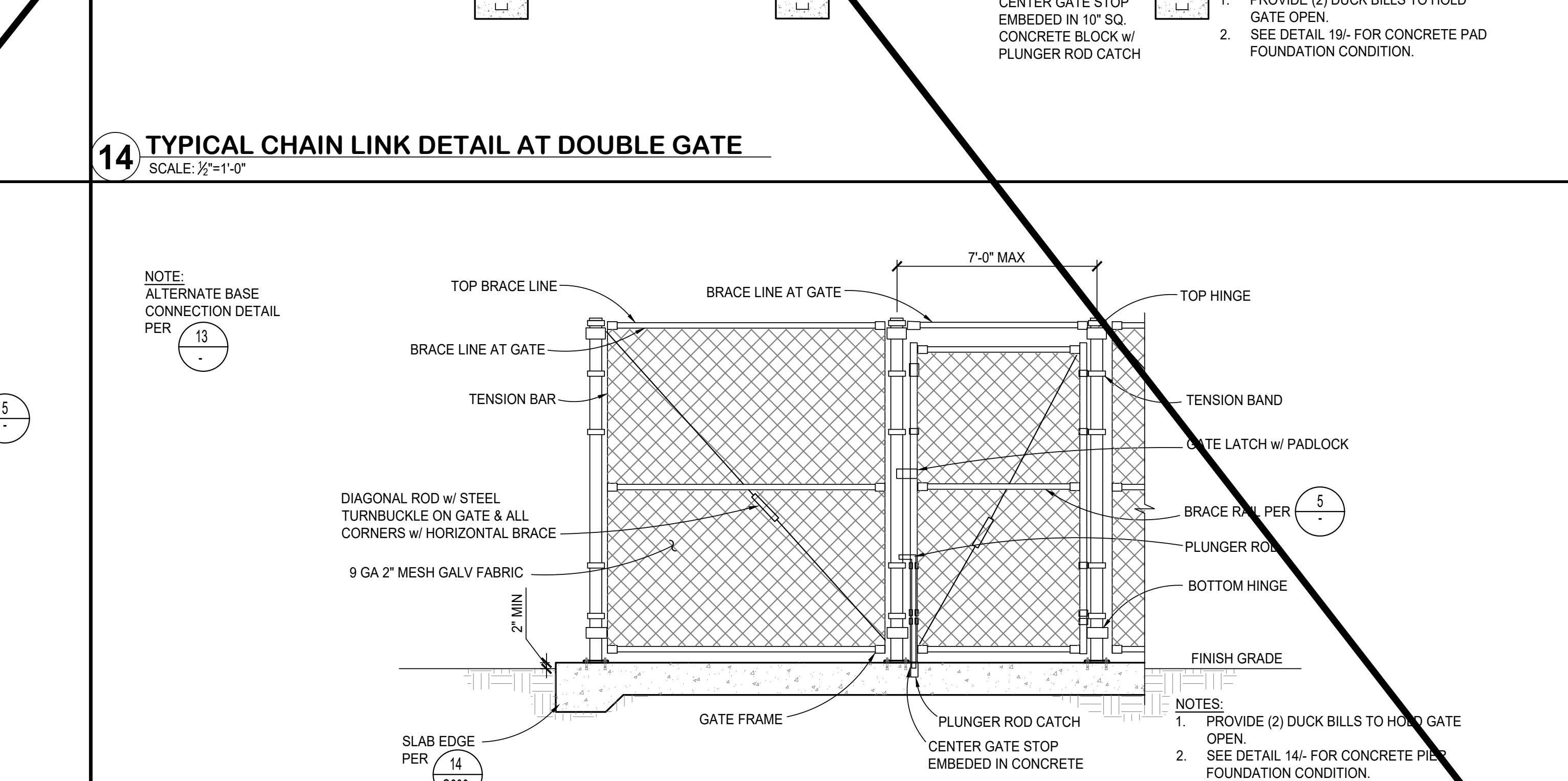
9 TYPICAL CHAIN LINK

SCALE: 1/2'=1'-0"



13 ALTERNATE BASE CONNECTION DETAIL

SCALE: 3'=1'-0"



14 TYPICAL CHAIN LINK DETAIL AT DOUBLE GATE

SCALE: 1/2'=1'-0"



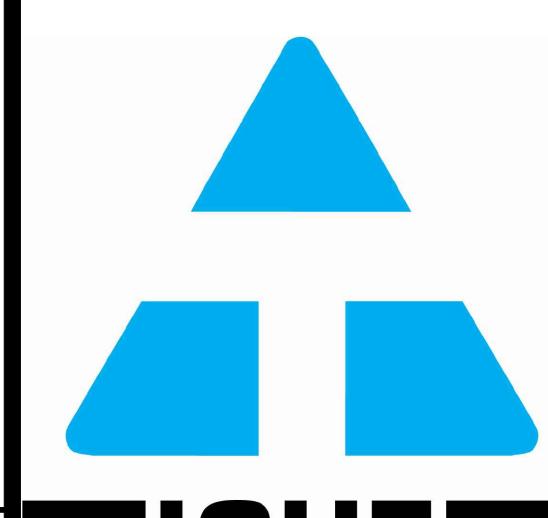
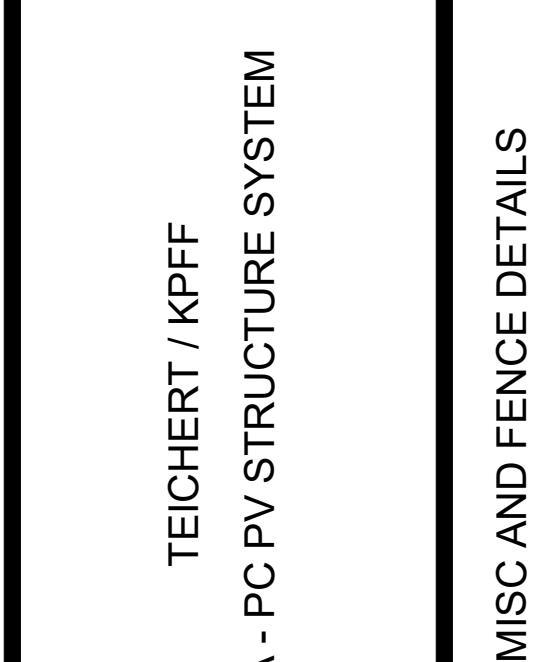
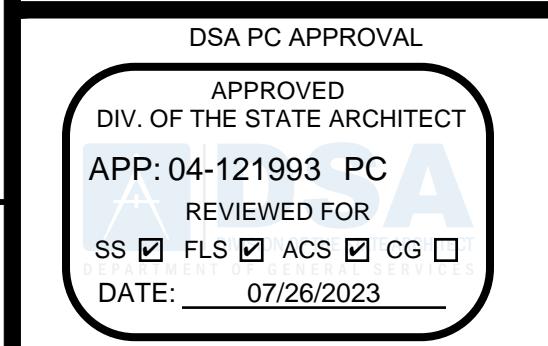
18 TYPICAL CHAIN LINK FENCE POST AT CORNER

SCALE: 1/2'=1'-0"

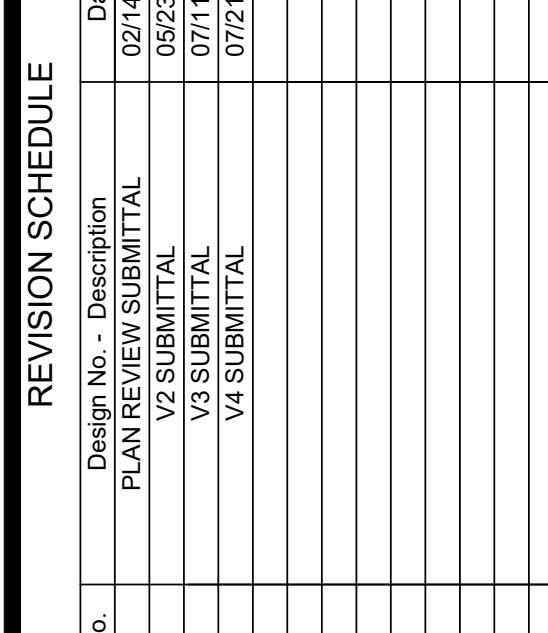


19 TYPICAL CHAIN LINK DETAIL AT GATE

SCALE: 1/2'=1'-0"

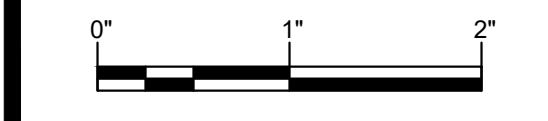
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DSA AND FENCE DETAILS

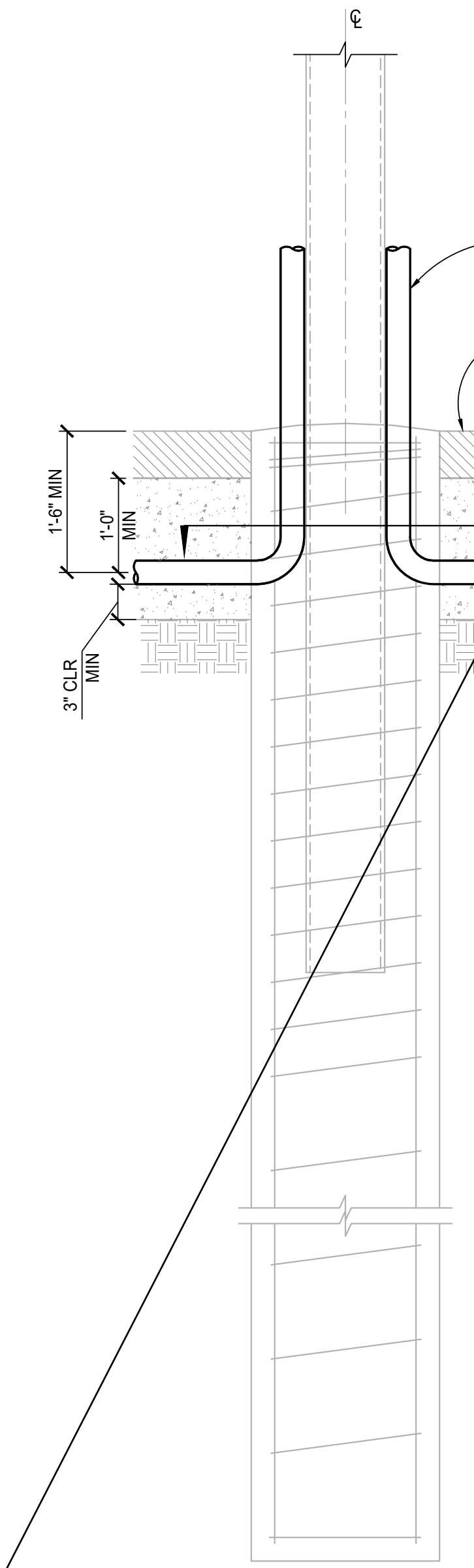


DATE 07/21/2023

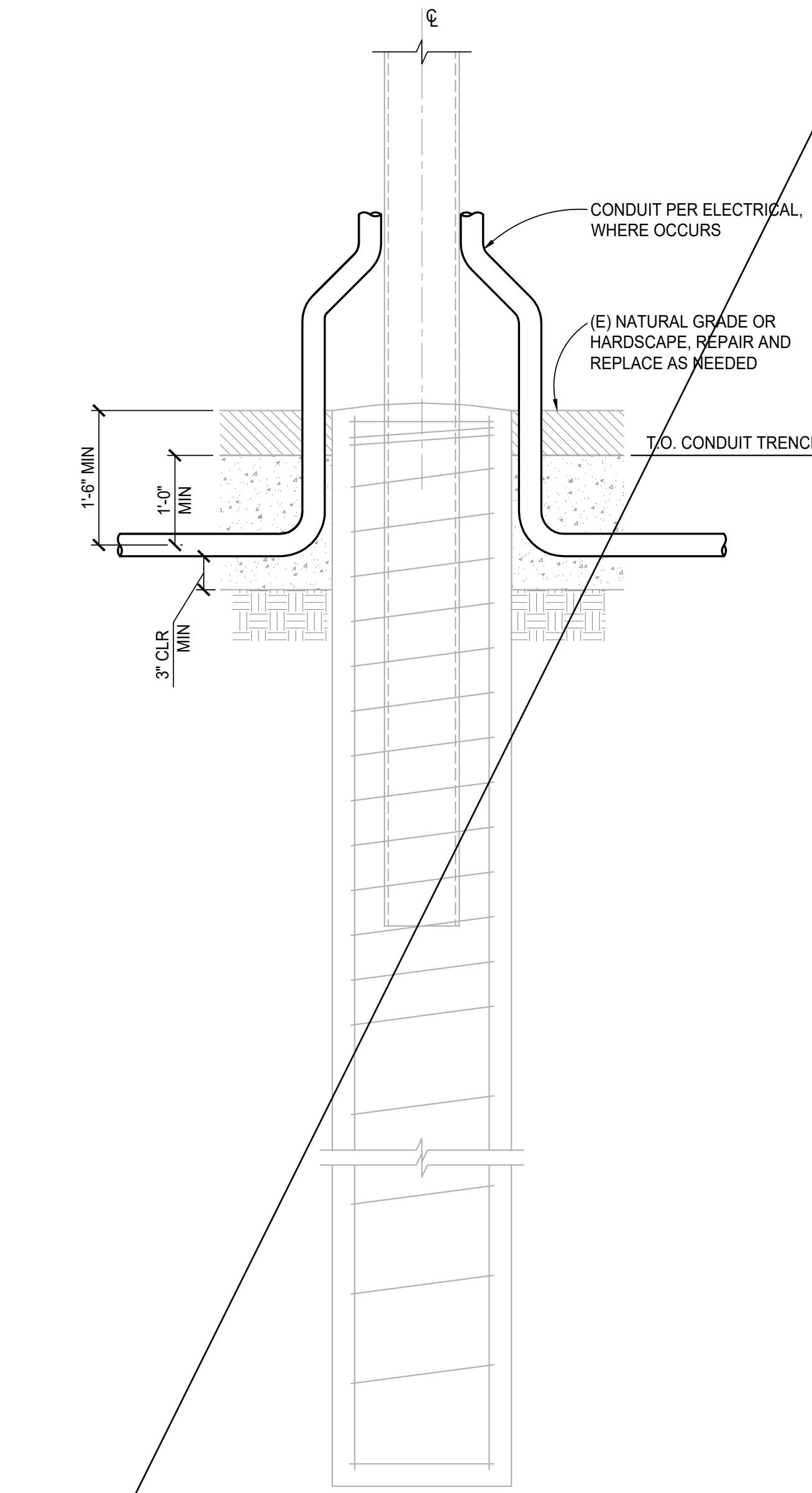
DRAWN BY JM

ORIGINAL SHEET SIZE 30 x 42
IF BAR IS NOT TO SCALE - DRAWING IS NOT TO SCALE

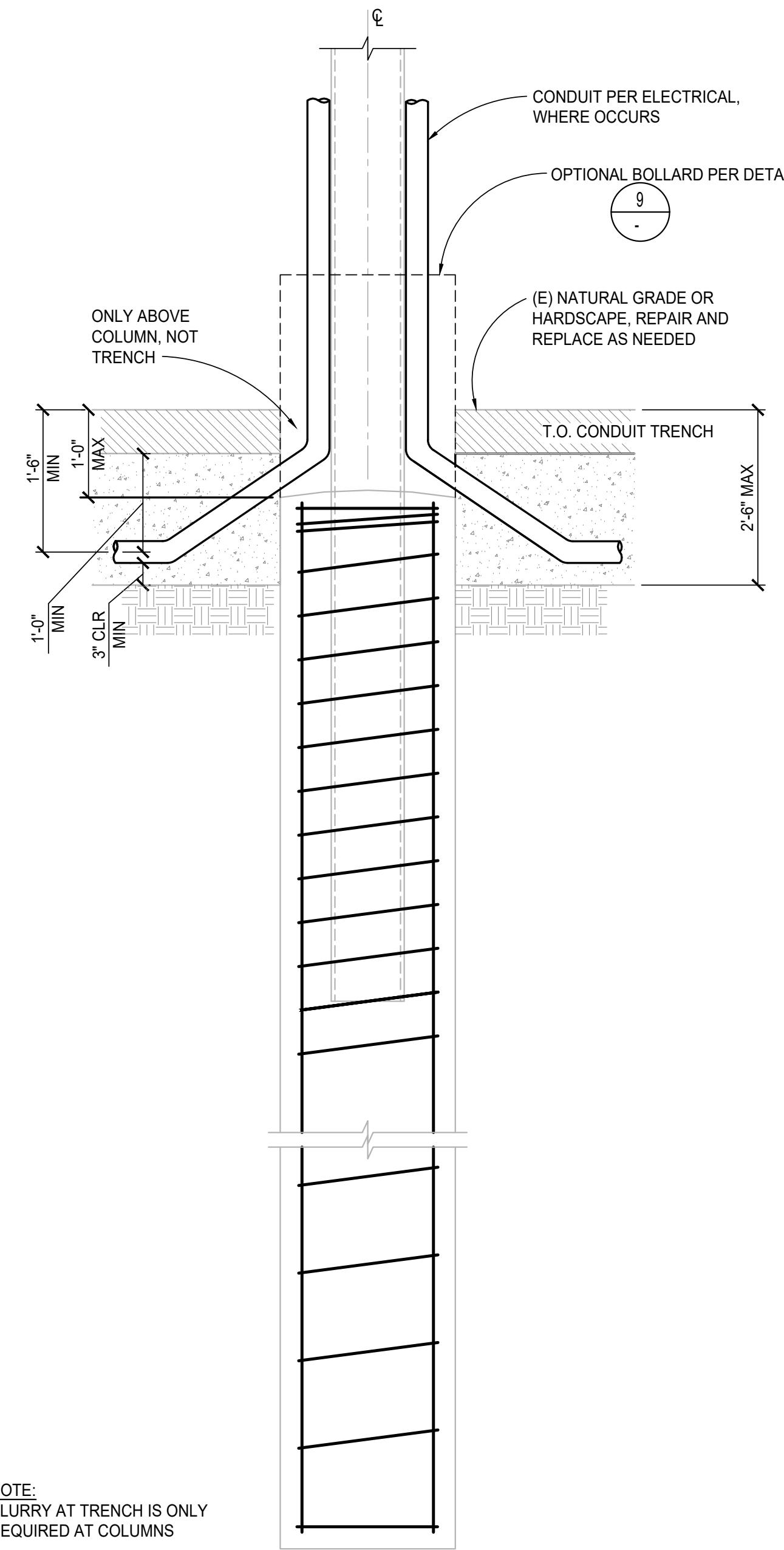
SHEET S601



6 CONDUIT ROUTING IN PIER

SCALE: $1\frac{1}{2}''=1'-0''$ 

7 OPTIONAL CONDUIT ROUTING

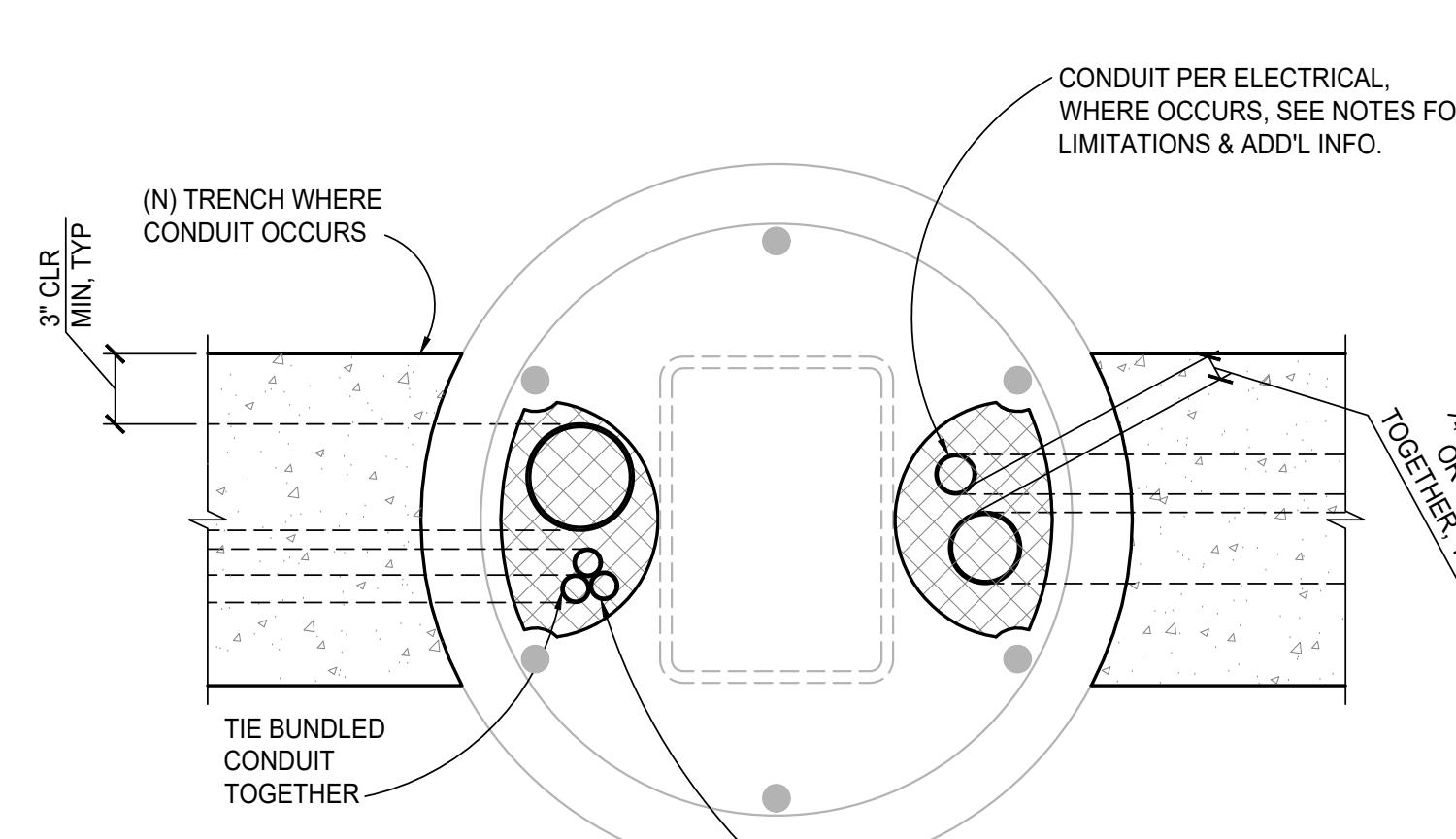
SCALE: $1\frac{1}{2}''=1'-0''$ 

8 ALTERNATE CONDUIT ROUTING

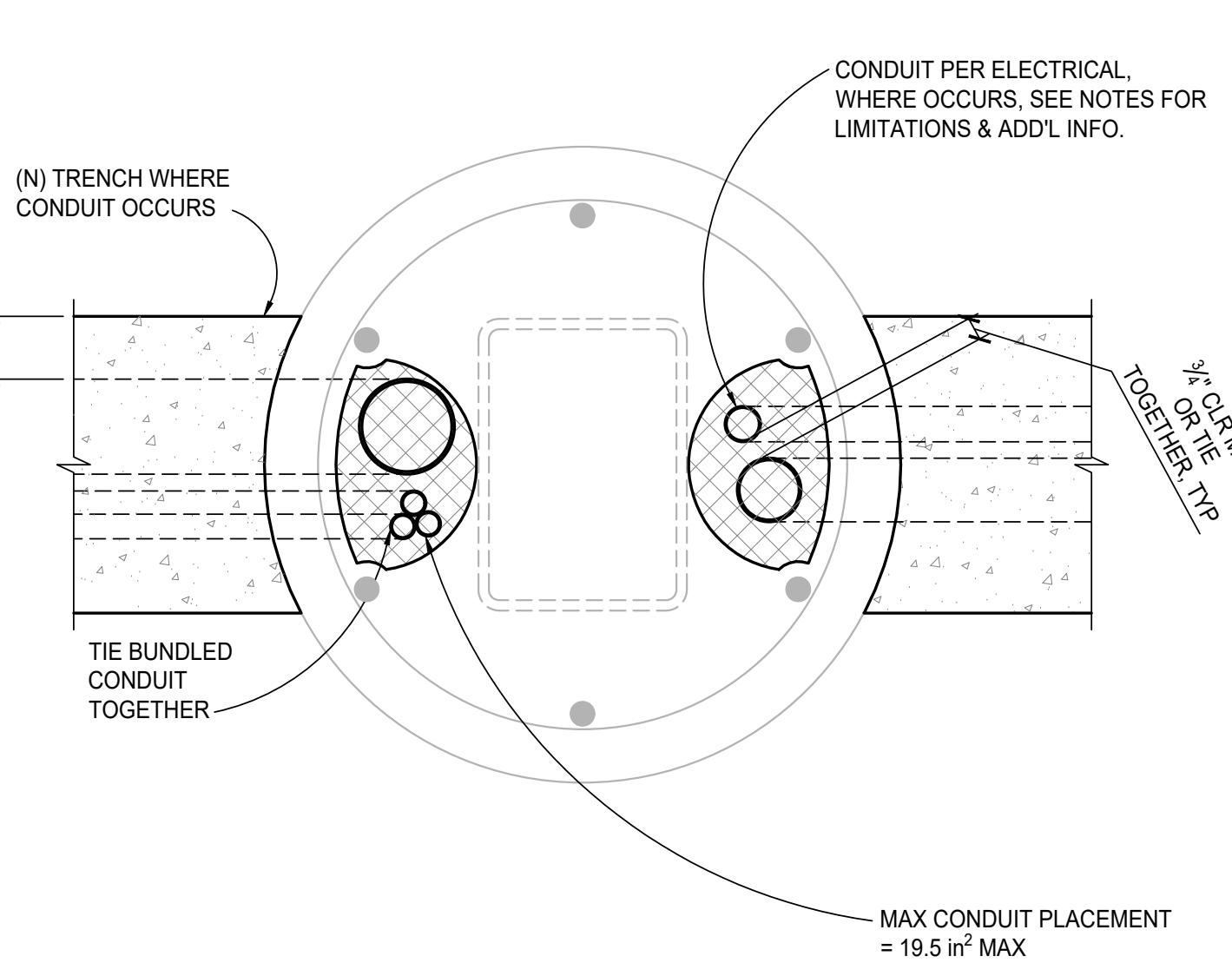
SCALE: $1\frac{1}{2}''=1'-0''$

LEGEND:		
CONDUIT PLACEMENT REGION: REGION $\geq 3/4''$ CLEAR FROM NEAREST ADJACENT VERT REBAR OR TRANSVERSE REINFORCEMENT		
NOTES:		
1. CONDUIT MAY BE PLACED ON ONE OR BOTH SIDES OF COLUMN		
2. SPACE CONDUITS $\geq 3/4''$ CLEAR MIN OR TIE TOGETHER WITH NO SPACE BETWEEN		
3. CONDUITS MAY BE TIED TO SPIRAL REBAR CAGE		
FOR REFERENCE		
CONDUIT SIZE, NOMINAL	MAX CONDUIT SIZE, ACTUAL	AREA (in ²)
4"Ø	4.0"Ø	15.9
3.5"Ø	4.0"Ø	12.6
3"Ø	3.5"Ø	9.6
2.5"Ø	2.9"Ø	6.6
2"Ø	2.2"Ø	3.8
1.5"Ø	1.74"Ø	2.38
1"Ø	1.17"Ø	1.08

4 CONDUIT LAYOUT IN CONCRETE PIER

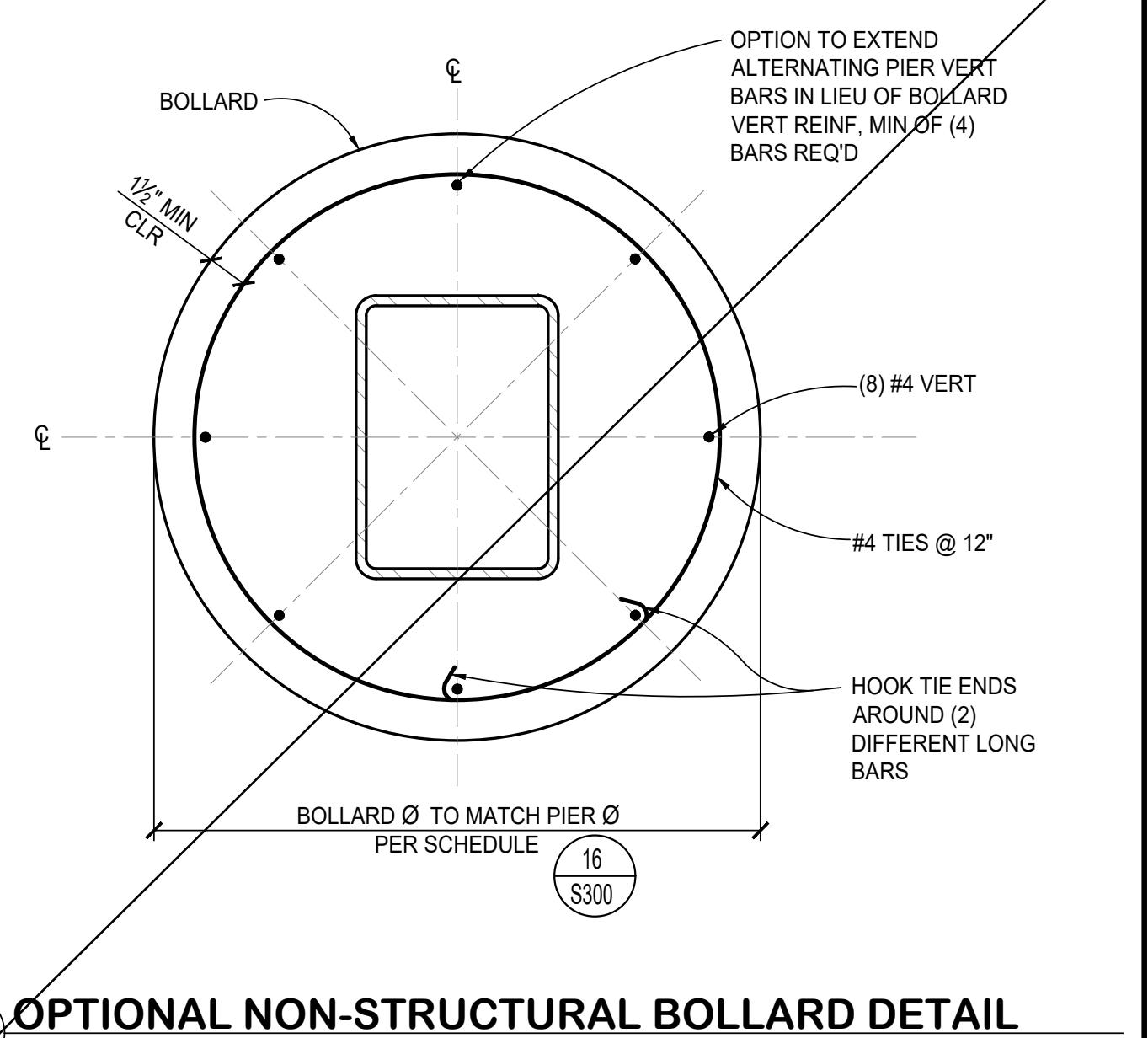
SCALE: $1\frac{1}{2}''=1'-0''$ 

9 BOLLARD - PIER / EMBEDDED COLUMN - TIES

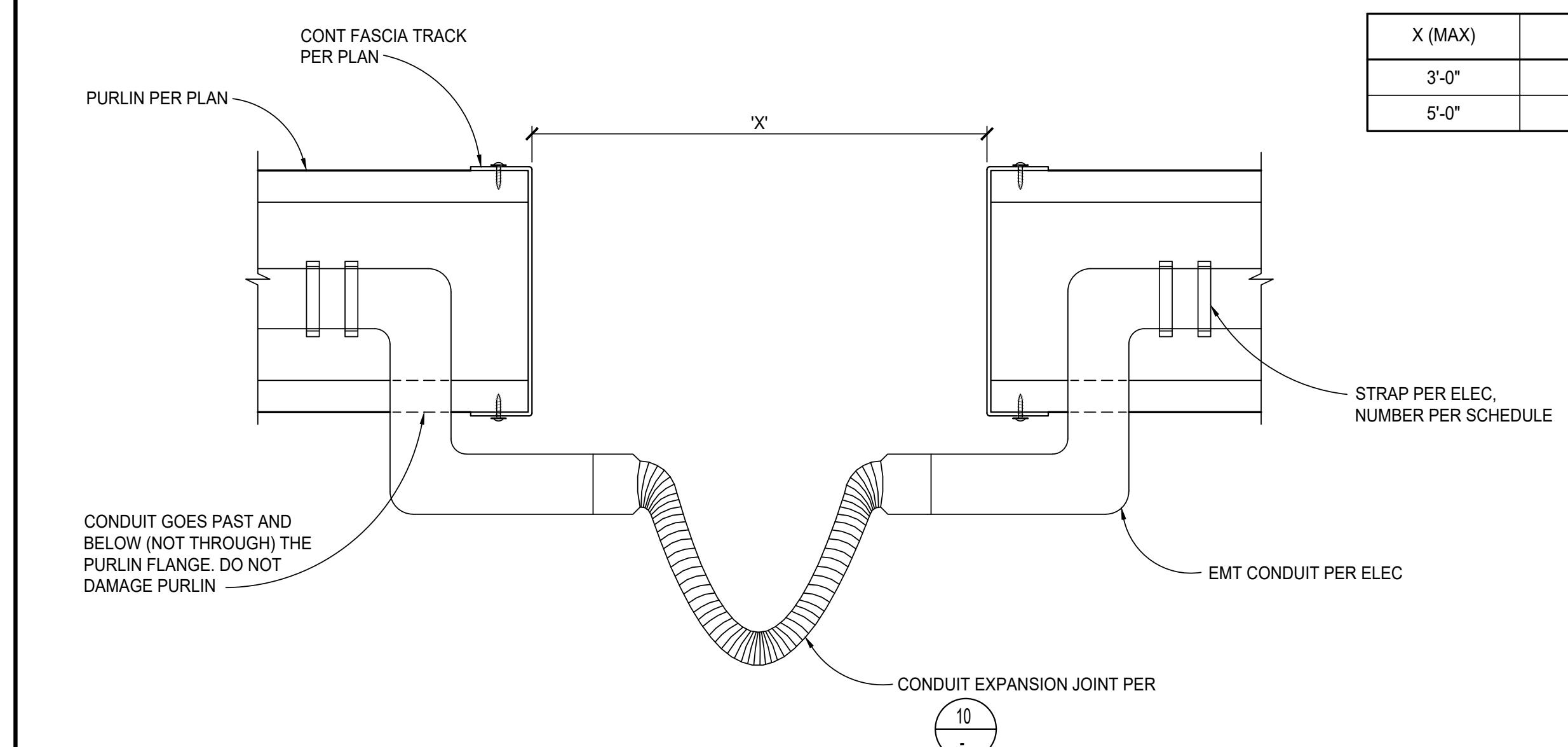
SCALE: $1\frac{1}{2}''=1'-0''$ 10 CONDUIT EXPANSION JOINT
BETWEEN STRUCTURES

SCALE: N.T.S.

X (MAX)	# STRAPS
3'-0"	(1) EA SIDE MIN
5'-0"	(2) EA SIDE MIN



11 OPTIONAL NON-STRUCTURAL BOLLARD DETAIL

SCALE: $1\frac{1}{2}''=1'-0''$ 

14 CONDUIT EXPANSION JOINT BELOW FASCIA

SCALE: N.T.S.

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DSA - PC PV STRUCTURE SYSTEM
CONDUITS ROUTING & BOLLARDSDATE 07/21/2023
DRAWN BY JM

REVISION SCHEDULE	
Design No. - Description	Date
FLA/AR/REV/SUBMITTAL	02/14/2023
V2 SUBMITTAL	05/23/2023
V3 SUBMITTAL	07/11/2023
V4 SUBMITTAL	07/21/2023

DATE 07/21/2023
DRAWN BY JM
0" 1" 2"
ORIGINAL SHEET SIZE 30 x 42
IF BAR IS NOT TO SCALE - DRAWING IS NOT TO SCALE
SHEET S602